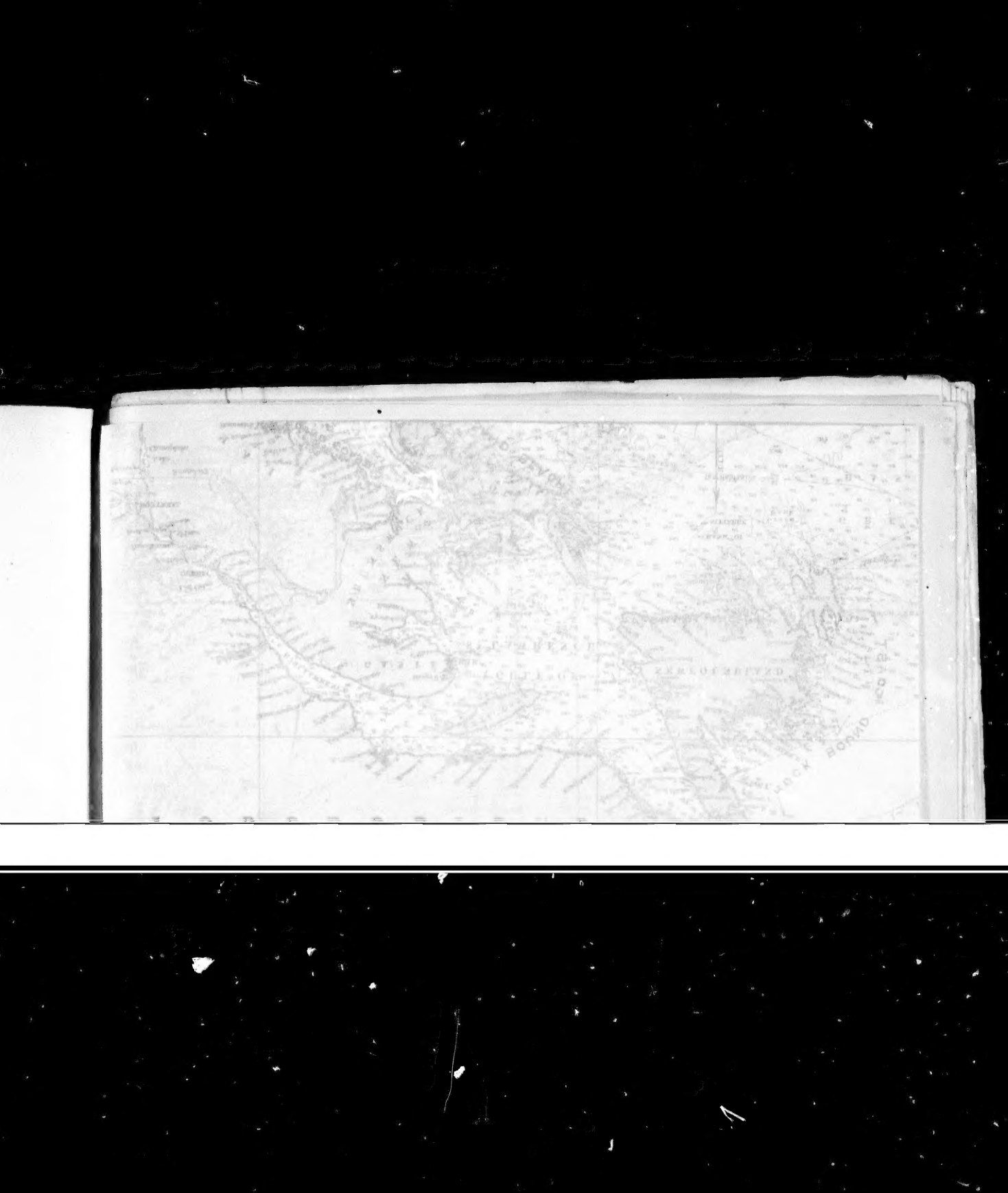


four hours and a half long. In the one case the whole day between sunrise and sunset would be six hours, and in the other nine hours long.

The single sentence in the Saga, or half sentence, on which the decision of the question is balanced, is this: "The sun shines there on *eykt* and *dagmal* on the shortest day of the year."

points of time, not *hours*. To find this the astronomer Bishop Thorlacius was instructed to observe the time of sunrise and sunset at Reykholt on the first Saturday occurring between the 11th and the 17th of October. One was found to occur at half-past seven in the morning, and the other at

"The Norwegians who first went over to Iceland were sprung from some of the most distinguished families in the land of their nativity. . . . Their predominant character is that of unsuspecting frankness, pious contentment, and a steady liveliness of temperament, combined with a strength of intellect and acuteness of mind seldom to be met with in other parts of the world. Their *language, dress, and mode of life have been invariably the same during a period of nine centuries.*"

the Icelanders into nine, watches. Seven of the latter number three hours each, and the remaining two an hour and a half, — which practically corresponds with the eight tides of the Norsemen, if the subdivision of one portion be allowed for, while the names of three divisions agree with those of the ancient days. In Iceland, also, the primitive mode of measuring time by the sun's passage over natural objects was still in vogue as late as 1813-1814, when Dr. Henderson visited that country: "The only dial in use was the natural horizon of each township, divided into eight equal parts, — by mountain peaks when such were situated conveniently, and by pyramids of stone where natural marks

[1] That it occurs at a later hour in southern Norway supports the conviction of Professor Storm that the time varies with the latitude. But the latitude of Nidaros, of southern Iceland, and Eriksfjörd in Greenland were all included within two or three degrees.

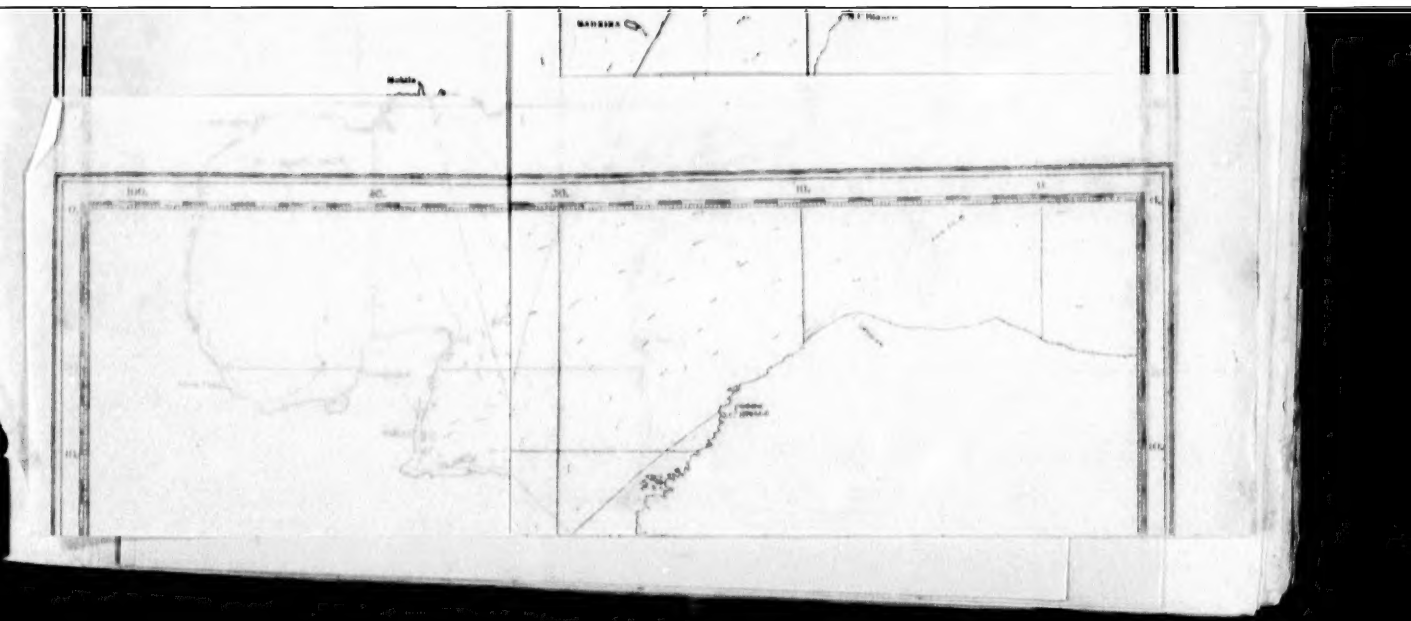
[2] Vigfusson says: "These day-marks are traditional on every farm; and many of them, no doubt, date from the earliest settlers. Arngrimsson confirms this statement. It was the immemorial practice in Norway.

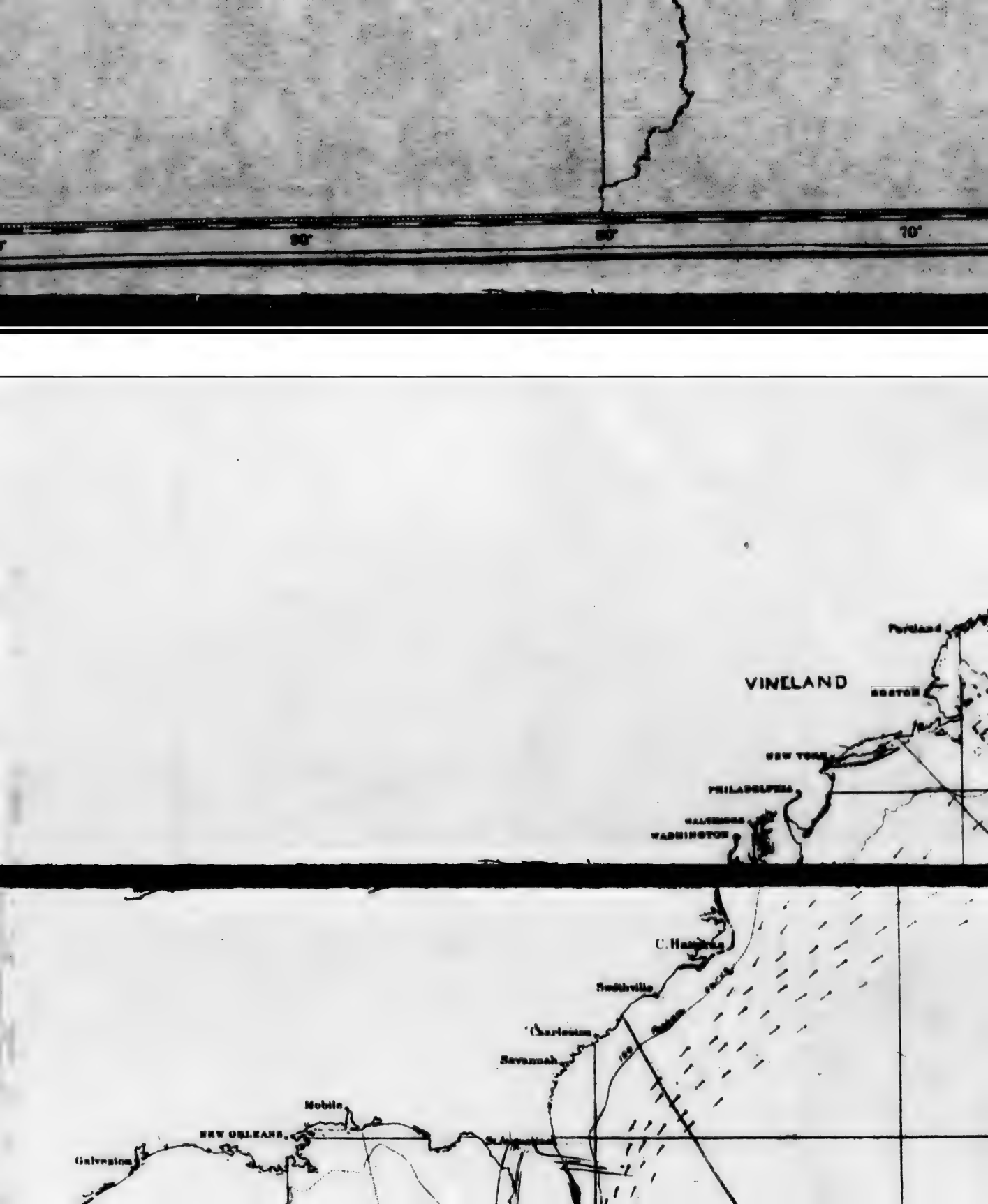
The precise latitude indicated by the shortest day of nine hours, as accepted by Rafn, was 41° 24′ 10″. But the precession of the equinoxes in the interval since Leif's time has been calculated (see paper by Storm); and it results in making the site to which Leif's observation applies to

In what appears to be a summary of early academic school geography, which it is safe to say includes only what was regarded by instructors as established geographical truth, occurs the following: —

[1] Corrected for precession of the equinoxes and refraction, by Mr. Geelmuyden, of Copenhagen.

[1] Antiquitates Americanæ, p. 283.

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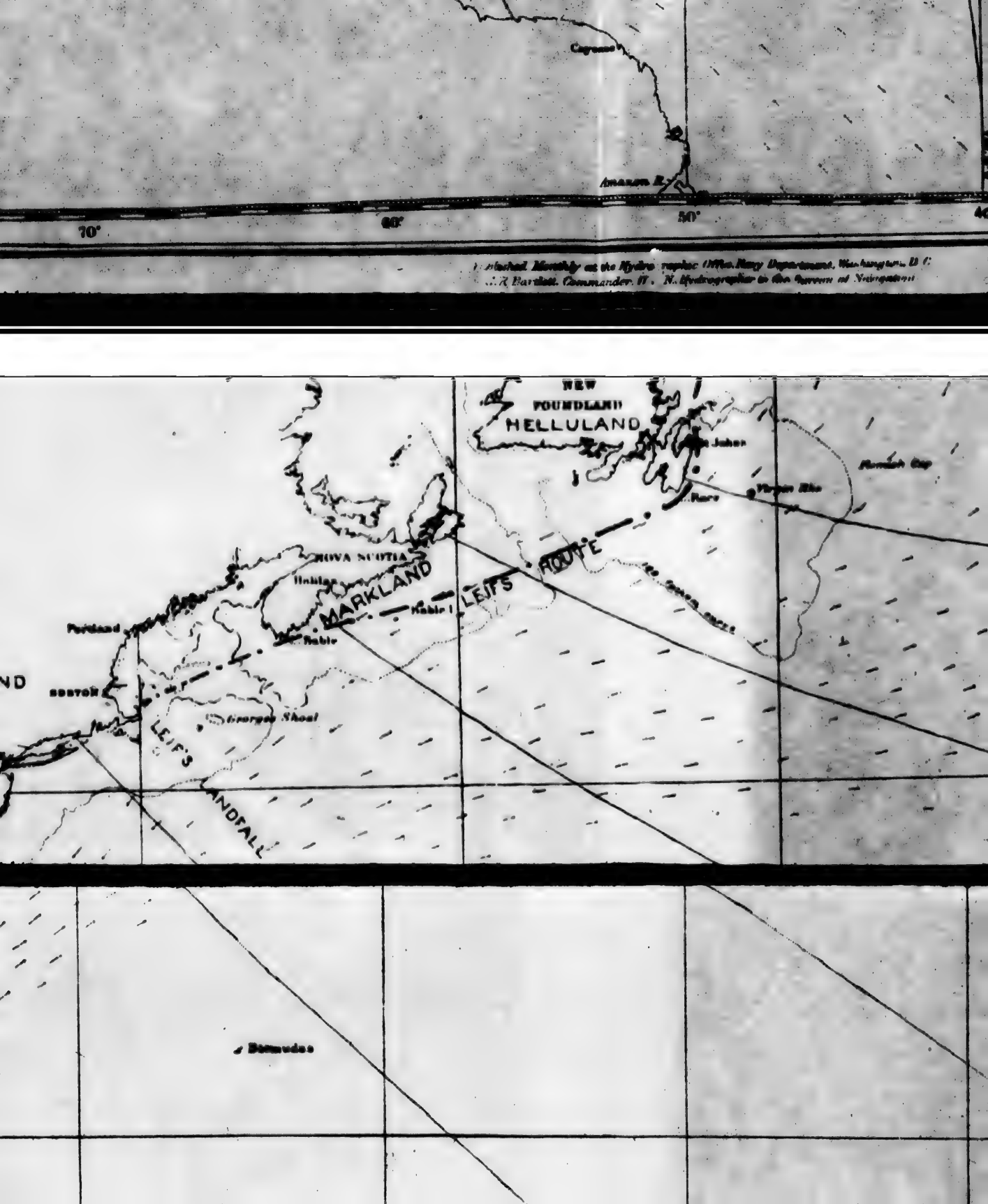
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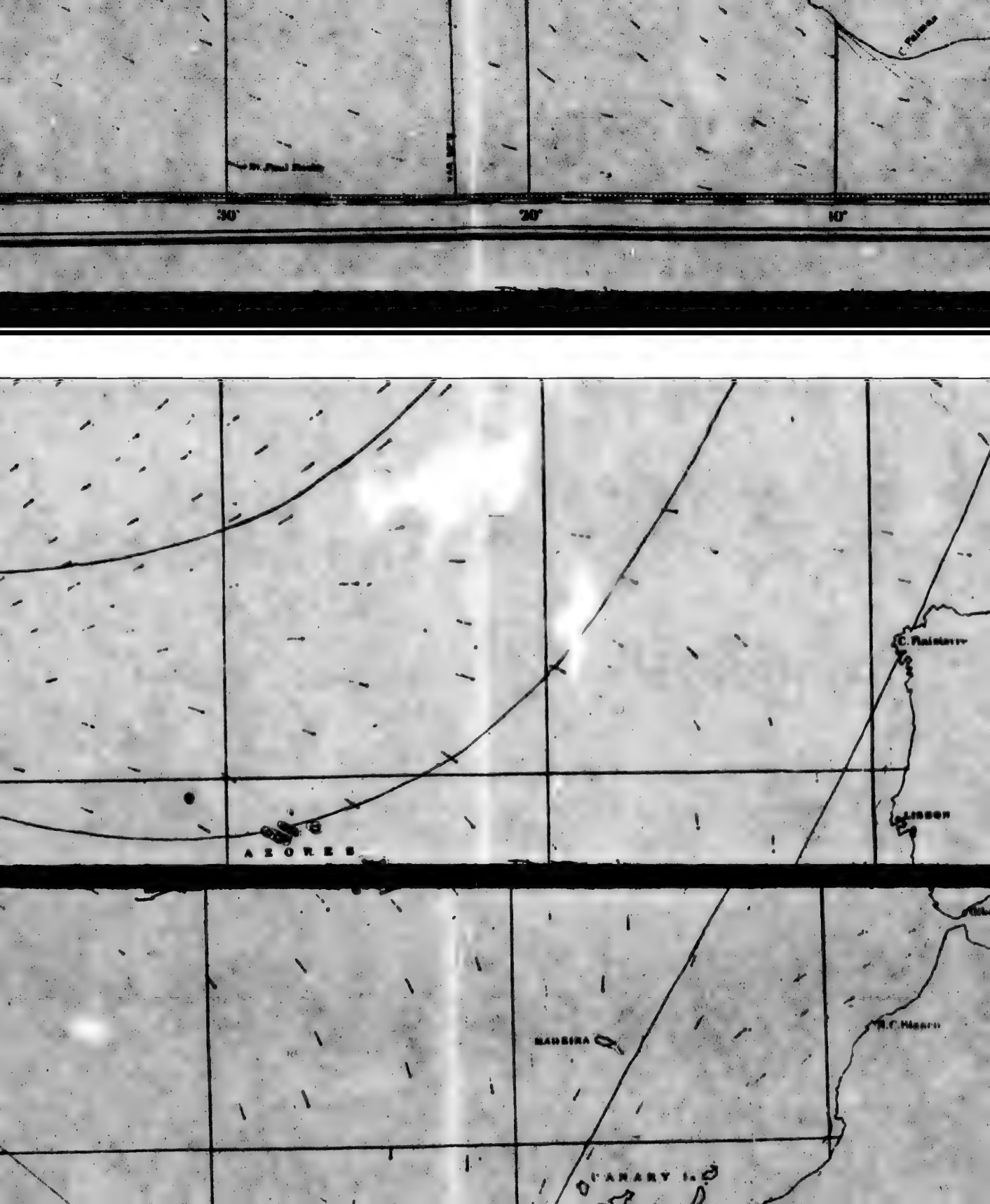
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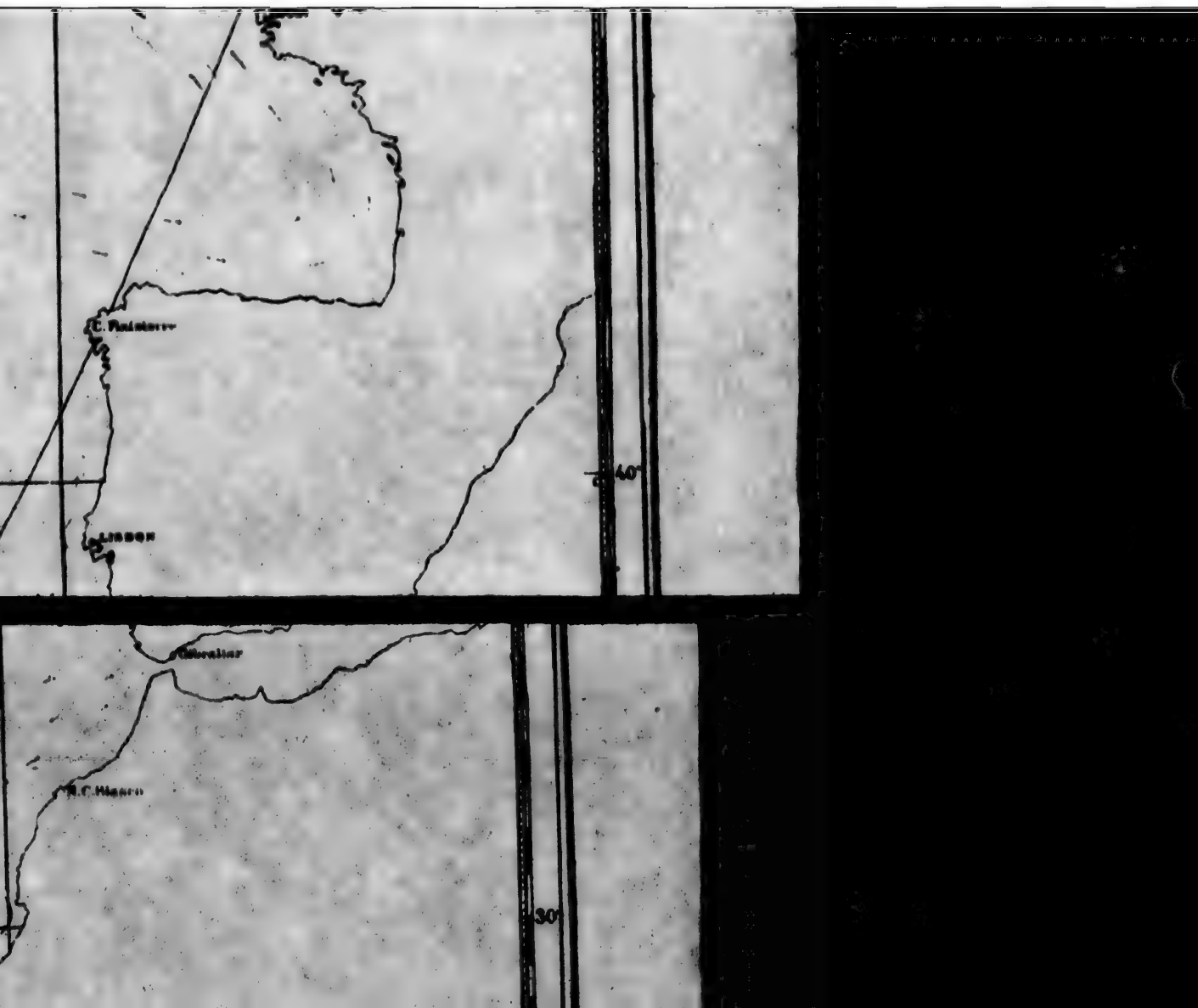
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NOTE TO THE READER. — Some of the Illustrations may seem misplaced; but they were needed at different points. My wish has been to place in accessible form as much of the material collected and used by me as I might venture to insert, with less regard to the criticism than to the service of the reader.

PREFACE.

IN my address at the unveiling of the statue to Leif Erikson in Boston, Oct. 29, 1887, I sketched an outline of the evidence that the Vineland of the Northmen was in southeastern New England.

In 1889, under the title of "The Problem of the Northmen," I gave, in a letter to the President of the American Geographical Society, an outline of the Discovery of the Site of Leif's Houses in Vineland, speaking of it as the fulfilment of a prediction. Later, in the same year, on the occasion of the completion of a commemorative Tower, at the mouth of Stony Brook, I communicated to the Geographical Society the Discovery of the Ancient City of Norumbega.

The detailed evidences of the accuracy of my later deduction have just been published in a letter to President Daly, entitled "The Defences of Norumbega." The present paper points out the Landfall of Leif on Cape Cod, and the site of the houses he built in Vineland; discusses the exploration of the Charles River by Thorwald, the site of his wreck, where he set up his old keel, — Kjalarnes (Cape Cod); and his burial-place, — Krossa-ness (the Gurnet); and indicates the locality of Straumfjörd (Chatham), the southernmost point reached by Thorfinn.

The literature of the subject has been recently enriched by an elaborate paper from the pen of Prof. Gustav Storm, of Christiania. It gives a recast of the evidence of the trustworthiness of the Sagas. The author attaches little significance to the part played by Bjarni and Thorwald in the identification of the region of Vineland, does not attempt the Landfall of Leif nor the site of his houses, and follows with a presen-

tation of the evidence that Newfoundland was Markland, and Nova Scotia was Vineland. The work well illustrates the inherent difficulties of the problem even to a Scandinavian scholar, and the great patience and care with which through many years Professor Storm has pursued it. This learned author, like Forster,[1] seems to have been repelled by the manifold repetitions and defective sequences in the relations preserved under the head of Thorfinn's Sagas. The cargoes of selected wood (*mösurr*) shipped to Greenland; the details of topography and hydrography; the islands observed; the alternating shallows at the mouth of the river flowing through a lake to the sea; the *Hôp* (a small landlocked bay, salt at flood tide and fresh at ebb), on the shore of which and in the same house Leif, Thorwald, Thorfinn, and Freydis successively dwelt; the fish-pits, the sand-beaches, the muddy banks of the river, — all are alike of relatively less interest to Forster, Malte-Brun, Laing,[2] and Storm. Had it fallen to their lot, acquainted as they were with the Vineland Sagas, to pass a lifetime in the territory where the terms of the Sagas might apply and their applicability be tested, — something the record of which would be sought for in vain in books, because a book cannot contain the record of what has not been found, — the problem would doubtless long since have been solved.

More than fifty years ago, the historian George Bancroft, after such examination of the subject as to him then seemed possible, left it conceivable that the Northmen may have reached the shores between Belle Isle and Hudson's Straits; and this notion is adopted by Justin Winsor, the editor of "The Narrative and Critical History of America,"[3] after a recent elaborate collocation of the literature of the subject. Referring to Mr. Bancroft's statement that "Scandinavians may have reached the shores of Labrador; the soil of the United States has not

[1] Mr. J. R. Forster, author of "Histoire des Découvertes et des Voyages faits dans le Nord. Paris, MDCCLXXXVIII."

[2] Samuel Laing, Esq., translator from the Icelandic of the Heimskringla. London, 1844.

[3] Vol. i. p. 93, 1889.

one vestige of their presence,"—Mr. Winsor says it "*is as true now as when first written.*"

Rev. Edmund F. Slafter, D.D., the careful editor of "Beamish's Translation of the Vineland Sagas,"[1] in the publications of the Prince Society, says in his Introduction (page 11):—

"The ground has been carefully surveyed, and the conclusion has been reached that no remains are to be found on the coast of America that can be traced to the visits of the Northmen in the tenth century."

The Committee appointed by the Massachusetts Historical Society to investigate the problem of the Northmen give the following as, in the judgment of the Corresponding Secretary, "the result of the best historical criticism":[2]—

"There is the same sort of reason for believing in Leif Erikson that there is for believing in the existence of Agamemnon. They are both traditions accepted by the later writers; but there is no more reason for regarding as true the details related about his discoveries than there is for accepting as historical truth the narrative contained in the Homeric poems."

These authorities seem to have written under the impression that the evidence, if there be any, of the presence of the Northmen at any particular point on the New England coast might be found in print. As they have failed to find it, they have been led to the conviction that such evidence cannot be found.[3]

The problem of the Northmen in America has been studied for the most part, and necessarily, in libraries. It was at one time thought to

[1] Voyages of the Northmen to America, 1877, p. 11.

[2] Proceedings of the Massachusetts Historical Society, December, 1887; also Narrative and Critical History of America, vol. i. p. 98.

[3] Prof. Henry Mitchell, a lifelong officer of the United States Coast Survey, professionally familiar with the outline of our Eastern shores, in a paper which I have been permitted to see, — written many years ago, and read before a social gathering, but not printed, — expressed the conviction, after a careful study of the Sagas that Leif's Landfall was on Cape Cod, and Vineland the west shore of Cape Cod Bay. This was the result of what may be regarded as the earliest study of the Sagas in their application to the actual Atlantic coast.

be a question mainly, if not solely, of textual interpretation. From the time of Torfæus — who, in 1705, first called attention to the Sagas telling of the discovery in 1000 of America by Northmen — the determination of the places of their Landfall and settlement has been believed to rest on the meaning of a single Old Norse word, *eyktarstad*, since this and the sentence in which it occurred in the Saga of Eirik Raude (Erik the Red) might, if rightly understood, give the latitude of Vineland. It will be seen, in the progress of the present paper, that this meaning still plays a most important part as a coincident test in the solution of the problem.

Such a problem must be worked out, ultimately, in the *field*. It must be solved by the juxtaposition of the descriptive terms of the Sagas containing the record of the discovery with the observed geography, including the latitude and longitude, the topography and hydrography, the geology and natural history of the regions assumed to have been visited and occupied, and by the study of the logs of the early Norse navigators as left us in the Sagas. To all this must be added the terminology of local names, and the ethnology of the region since the advent of the Northmen.

Since the days of Rafn, Agassiz has found the region I have assigned to the early occupancy of the Northmen to be a vast area of countless moraines, without which there could have been no salient of Cape Cod. Bache and Mitchell and Davis of the Coast Survey have determined the curves and currents, tides and soundings of our coast to the British lines, and learned much of the laws that govern the changing banks. The Admiralty charts of British North America and careful explorations by competent men have given us the coast-lines from Cape Sable along Nova Scotia, Cape Breton, Newfoundland, and the shores of Labrador to Cape Chudleigh. All these unite to enable us to see where the Vineland of the Sagas was possible and where it was impossible. The study of the aboriginal languages in connection with the territorial limits of Indian tribes has come to be felt, as it was not earlier, to be a factor in

the solution of geographical problems. Photography has appeared to make it possible for a student to command the scenery, the maps and charts, and the ancient geographical manuscripts of the world. Earlier it was not so easy as it now is to visit Norway, study its instructive topography, and become acquainted with the usages of the people from whom the enterprising Northmen of ancient Iceland went out; or, by personal inspection, to become familiar with the features of our own New England coast. It is only within comparatively recent times that southern Greenland has been the subject of careful study by scientific men of Sweden, Denmark, and Norway. They have brought to light the remains of churches and dwellings and cemeteries of the Northmen of the time of Eirik Raude and the centuries that followed immediately after. Nordenskjöld has given us, among many other most interesting pictures, photographs of the possible remains of Leif's paternal mansion, — Brattahlid, — in which were celebrated the nuptials of Thorfinn Karlsefni and Gudrid.

The more I have studied the Saga of Eirik Raude the more profoundly have I become impressed with the fidelity and trustworthiness of the memories that were held in tradition, and finally taken down and preserved on the introduction of the art of writing.

I have before me, I believe, the chief sources of our knowledge of the early discovery of Vineland. But it seemed to me desirable to discuss the individual renderings of the Sagas, one by one; and so I have had made, at my side as it were, a new translation of the Summary of the Vineland Sagas in Peringskjöld's Heimskringla.

This summary — the so-called interpolation into the life of Olaf Tryggvasson — seems a *résumé* of the Vineland Sagas. Some details are omitted, which other relations supply. The whole expedition to Straumfjörd, except the supply of food from the castaway whale (the scene of which seems to be misplaced), is wanting, — as is also the account of the profusion of ducks' eggs[1] on Monomoy; the occurrence of great islands before the mouth of Charles River (the Brewsters and the others);

[1] See *Notes* in Appendix.

the exploration of the river by Thorwald during the summer after the first winter, and the general features of the Charles; the shallows at the entrance of the river to the Back Bay below the Brookline bridge; various topographical features and bearings that enable one to identify important localities; and many other particulars, such as the occurrence of young corn-plants at the time of fish-spawning, the fish-pits, some of the visits of the Skrælings, and certain incidents of the battle in which Freydis took part. But the continuity of the story, embracing the principal and more important events, — the work of one Saga man, principally of compilation, — forced upon me the desirability of a new translation, for which a rare opportunity by a thoroughly educated native Icelander presented itself.

Mr. Arngrimsson has made at my instance a fresh rendering of the original Norse, as given in Peringskjöld. To this I have only ventured to add from the translations of the other Sagas, by different persons on different ships at different times, such fragments in the form of notes as help to fill out the portraits of the voyages and experiences, and as have enabled me to realize to myself the story in its proper sequences. That others may enjoy the fruits of this work, I print them in connection with the Peringskjöld Saga in the Appendix. To this I have added a part of the so-called Thorfinn Sagas, from the translation made under the supervision of Rev. Dr. De Costa, and contained in his "Pre-Columbian Discovery of America."

Of the accuracy of the picture I have produced for study there can be no doubt, on looking at the results at which I have arrived. They clear up the misapprehensions that have arisen since the Northmen came, and make intelligible the relations of Verrazano, Gomez, Parmentier, Allefonsce, Thevet, Ramusio, David Ingram, John Dee, Hakluyt, Sir Humphrey Gilbert, Champlain, Lescarbot, and others, and the cartography of a century and more, stamped with the name NORUMBEGA.

It has seemed to me well to submit a considerable selection of the pictures, maps, charts, cuts, photographs, etc., which have served in my

research, along with my exposition of the old story of the Sagas. They may enable those interested in the subject better to see upon what my convictions rest; and they may lend assistance in lines of inquiry which I have not pursued, and so contribute to the aid of others in the study of the early history of this coast region. My purpose in the paper that follows is mainly to demonstrate beyond the reach of question the locality of Leif's Landfall and the site of his houses in Vineland.

To the officers of the United States Coast Survey and Hydrographical Bureau at Washington I am greatly indebted for authoritative maps, charts, and records. The City Government of Cambridge has given me the kind co-operation of the office of the City Engineer in the surveys of the region of Charles River and in the production of maps. The priceless collection of maps and charts of the late J. Carson Brevoort relating to the Cartography of New England has long been drawn upon by me for photographic copies, and is now, as a whole, in my possession. I have also had the loan of the collections of maps of the late Mr. S. L. M. Barlow, of New York, for utmost freedom in photographic copying, of which I have taken full advantage, especially in all the maps illustrating the beginnings of New France. From the Rev. Dr. B. F. De Costa I have the original tracings of the map of Hieronymus Verrazano of 1529, of that of William de Teste, and also of John Rotz; of the New England portions of the Molyneux Globe and also of the Lenox Globe, and the precious photographic negatives of Maiollo's map of 1524–1527 from the Ambrosian Library at Milan.

The Lenox, John Carter Brown, American Geographical Society, Congressional, Boston Public, Athenæum, and American Academy libraries, and, above all, the Harvard College Library have given me co-operation on every hand. To Baron Nordenskjöld of Stockholm, M. Gaffarel of Dijon, M. Beauvois of Colberon, Côte d'Or, I am indebted for their publications in fields of labor connected with the Northmen. I have most valuable works from the library of the late Dr. Worsaae, of Copenhagen, relating to

Vineland. I have also possessed myself, in the publications of the Royal Geographical Society of Denmark, of copies of a considerable number of ancient maps of Danish and Icelandic authorities. The Bibliothèque Nationale of Paris has, through the co-operation of Miss Healy, the daughter of the artist, furnished me with photographs of specific portions of the manuscripts and of original pen-and-ink sketches relating to the American coast, by Allefonsce, the pilot of Roberval.[1] I have been so fortunate as to secure a perfect copy of Thevet's "Cosmographie" of 1575.

Photographs, sketches, and original drawings of various interesting points have been furnished me by Miss Cornelia Horsford. To Mr. Samuel Adams Drake, the historian, I am indebted for photographs and maps of the coast of Newfoundland.

All these have made it possible to test the relations of the Sagas by methods, — in some respects quite new.

I may not forget to acknowledge the varied services of Mr. Thomas J. Kiernan of Harvard College Library, and of Mr. George Davis of the Cambridge City Engineer's office.

[1] The efforts that resulted in giving to me these precious absolute *fac-similes* have led to the extension of the service to students of any ancient manuscripts in the archives of the Library, upon payment of the cost.

DESCRIPTIVE NORSE WORDS EMPLOYED IN THE SAGAS OF ERIK THE RED AND OF THORFINN.

Budir, — Booths; temporary abodes, less substantial than permanent dwellings; as, booths at a fair.

Furdustrand, — From *furda*, spectre, and *strand*, a shore: *furdustrandir*, spectral or wonderful strands; applying to a long sand-beach, convex to the sea, in sailing past which new shore is constantly entering on the horizon before and vanishing behind. Possibly, also, because of the appearance of mirage; also because it was so long sailing past it, a curve of constantly increasing radius.

Helluland, or **Helleland,** — Slate-rock, fissile, flat-stone, or broad-stone land. Authority,— educated Norwegians (Vigfusson).

Holl, — Contracted from *hvâll*, hill or hillock (Vigfusson). *Ulles-water* (Patterdale, England) has the same root.

Hóp, — A small landlocked bay, or inlet, connected with the sea so as to be salt at flood tide and fresh at ebb (Vigfusson).[1] Name given by Thorfinn to the lake through which a river flowed to the sea; also applied to the country surrounding the lake.[2]

Husa-snotru, — House-scales for weighing. Swedish *wag*, Latin *stateram ligneam*, wooden scale-pan (Peringskjöld).

[1] Old Norse Dictionary, p. 281.

[2] *Hóp*, n. (Anglo-Saxon *hop;* Scottish *hope, haven;* perhaps connected with A.-S. *hop*, English *hoop*, with reference to a *curved* or *circular* form.) *A small landlocked bay*, or *inlet*, connected with the sea so as to be salt at flood and fresh at ebb. Frequent in modern usage.

The truthfulness of the description, in the use of the single word *hóp* applied to the lower Charles is worthy of notice. At flood the water in the great expansion called the Back Bay (the "lake" of Leif) rises some ten to twelve feet, and backs up the river proper to the fall at Watertown, making at flood a salt-water bathing-resort near Gerry's Landing (at the site of Leif's houses), and overspreading all the meadows with salt water; while at ebb the fresh water, now ten or twelve feet lower in the narrow and shallow channel of the river proper, is prolonged into the area of the Back Bay, through which the river flows into the sea.

There is another division of the definition of *hóp* by Vigfusson (1st ed. ii. 387): "A local name, *Hóp, Hops-os, Vestr-hop Landr:* in England, local names, as *Stanhope, Easthope* (Kemble's Dipl.);

Hveiti-ax, — *Hveiti*, wheat, and *ax*, ear-of-corn (Vigfusson). Skeat says the word *wheat* is derived from a Teutonic root which means *white*, and qualifies the color of the flour made from the grain, kernel, or corn of whatever kind. *Hvitar* is *white*, as applied to the White River in Iceland (Henderson). Having in mind the general law of aboriginal languages, that names are descriptive of the objects to which they are attached, *Hveiti-ax* would be *white ear-of-corn*. *Hveiti* qualified the color of the aggregation of kernels on the spike. Indian corn, if white, admits of such a descriptive name. Kernels, up to the time of ripening, are white. In ripening, some varieties take on color. If the ear of Indian corn was green, that is, *unripe*, when first observed, it was white.

Kjalarnes, — From *kjölr*, keel, and *naes*,[1] nose. *Kjalar* is the genitive. *Kjalar-nes*, the name of the north end of Cape Cod, — the ness of the Keel (Thorwald and Thorfinn). Merriam's map of about the end of the sixteenth century has *P.* (*P.* = *Promontorium*) *Coara-nes*, probably from natives, the offspring of mixed parentage. Lok gives *Carenas*, Mercator *C. de Arenas*, Champlain *Cape Blanc*, Gosnold *Cape Cod*, to the same point.

Krossa-nes, — From *krossa*, to mark with a cross, and *nes*, a promontory (Vigfusson). Thorwald directed crosses to be set up at his grave. Vallard, on his map of 1543, recognized the Krossa-nes in his Cap de Croix, near C. de Arenas.

Markland, — Primarily a boundary; wooded land, and also open field; land inviting to settlement (Norwegians, Danes, and Swedes; also Vigfusson).

Maser, — *Māsur* = *mösurr*, "spot wood;" curly maple; decorative wood; any marbled or veined wood (see Vigfusson; Beamish, Prince Society's Ed., p. 68). Also burr, burl, borl, or warty outgrowth on oak, ash, birch, and other trees. *Mösur* = Old High German *knorriger auswuchs*. Tough and decorative; used to make platters, bowls, chalices, scale-pans, cups, and maces. *Māsur*, — *a* as in *fate*.

Elleshoop in Holstein (Grein); *Kinkhope*, *St. Margaret's hope*, etc., in Orkney." The name has no equivalent in our language, and taken in connection with the phrase *a river flowing through a lake into the sea*, and the statement in the Sagas that the lake was so shallow at ebb-tide that vessels could not enter the river above (Cottage Farm station) to sail up except at flood, it presents a picture that can scarcely be matched for clearness and completeness. What was true in the year 1000 is true to-day. What was a *hóp*, an inlet, a landlocked bay, alternately deep enough to float sea-going vessels and shallow enough to ground them at the mouth of the river in the upper part, alternately salt and fresh, was not more true nine hundred years ago than it is to-day. The map which I have compiled, compared with that published at Valladolid in 1598, which gives the site of the Norwegian colony on the Rio Grande (the Charles), may be studied in this connection and with the Sagas. Verrazano (1524) described this lake, in his letter to the King, as "among small hills, and as three leagues around, and connected by a river half a league long with the sea." His map shows the mouth of the river Anguileme, entering from above the lake.

[1] *Naes*, or *ness*, or *nes*, nose.

Skrælings, Skrælingjar, — *Skrill,* a mob (Vigfusson); applied to the great crowd of Indians in their canoes and in their eager traffic; as, "The whole water looked as if sprinkled with cinders" (Smith), or "sown with coal" (Beamish). Primarily, it does not mean the Indians, much less the Esquimaux; rather the *lowest of men,* hideous in personal appearance. It means also a mob, a disorderly crowd without a leader. The first party, in nine skin-boats (birch-bark canoes) were not called Skrælings in the Saga; they were not numerous enough to be called a mob, and were too distant to be distinctly seen.

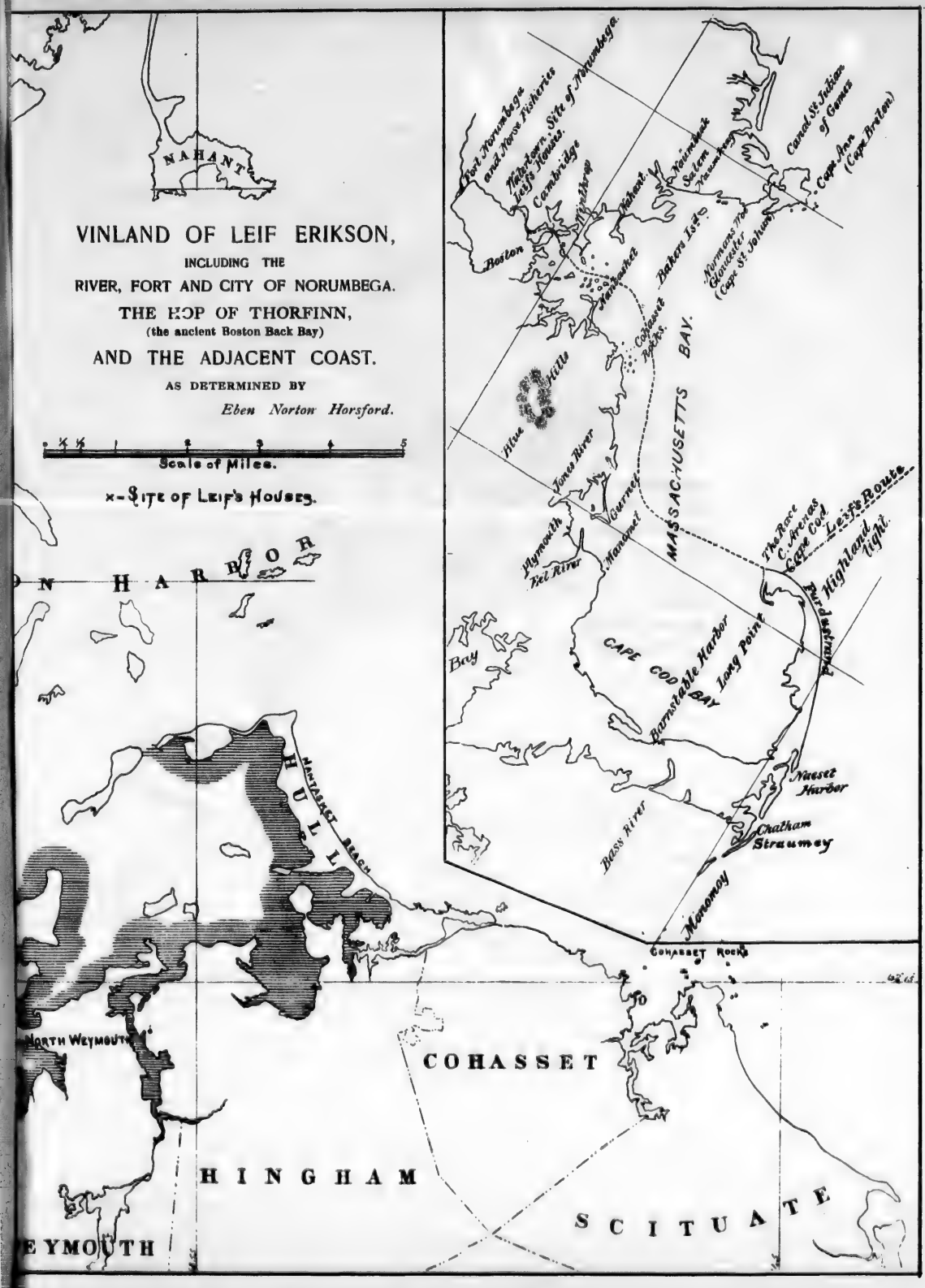
Straumey, Straumö, — From *straumr,* stream, race, or tide, and *ö* or *ø,* island. It applies at Chatham, the "heel" of Cape Cod, to a long narrow beach parallel to the shore, between which and the mainland, and outside as well, the tide is visible and strong.

Straumfjörd, — From *straumr,* current, and *fjörd,* sound, tidal frith, oblong bay or channel, in which the tidal current is noticeable; a channel extending *through,* — that is, *not* a cul-de-sac.

Vinland, — Named from its productions, *Winland* (or Vineland), — Leif; Adam of Bremen.

THE

LANDFALL OF LEIF ERIKSON


NAHANT
VINLAND OF LEIF ERIKSON,
INCLUDING THE
RIVER, FORT AND CITY OF NORUMBEGA.
THE HOP OF THORFINN,
(the ancient Boston Back Bay)
AND THE ADJACENT COAST.
AS DETERMINED BY
Eben Norton Horsford.
Scale of Miles.
x-Site of Leif's Houses.
Fort Norumbega and Norse Fisheries
Site of Norumbega
Leif's Houses.
Cambridge
Charlestown
Roxbury
Boston
Hingham
Nantasket
Salem
Peabody
Canal St. Indian of Genoa
Cape Ann (Cape Breton)
Bakers Is.
Norman's Woe Gloucester (Cape St. Johns)
Hull
Cohasset Rocks
MASSACHUSETTS BAY.
Blue Hills
Jones River
Kingston
Duxbury
Marshfield
Plymouth
Eel River
The Race
C. Arenas
Cape Cod
Leif's Route
Highland Light
Pilgrim Monument
Provincetown
CAPE COD BAY
Barnstable Harbor
Long Point
Wellfleet Harbor
Chatham
Strawmey
Bass River
Monomoy
Cohasset Rocks
HULL
Nantasket Beach
North Weymouth
COHASSET
HINGHAM
SCITUATE
EYMOUTH

MEDFORD
MALDEN
EVERETT
REVERE
SOMERVILLE
CHELSEA
CAMBRIDGE
EAST BOS
WINTHROP
WALTHAM
WATERTOWN
BOOM DAM
MAIN ST.
BELMONT ST.
CHARLES RIVER
BRIGHTON
BOSTON
HOP
BROOKLINE
SOUTH BOSTON
NEWTON
ROXBURY
LOWER FALLS
UPPER FALLS
NEEDHAM
WEST ROXBURY
DORCHESTER
NEPONSET RIVER
HYDE PARK
QUINCY
DEDHAM
MILTON
BRAINTREE

VINLAND OF LEIF ERIKSON,
INCLUDING THE
RIVER, FORT AND CITY OF NORUMBEGA.
THE HOP OF THORFINN,
(the ancient Boston Back Bay)
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AS DETERMINED BY
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Scale of Miles.
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NAHANT
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HINGHAM
WEYMOUTH
COHASSET
SCITUATE
MASSACHUSETTS BAY.
CAPE COD BAY
Long Point
Highland Light
Leif's Route
Nauset Harbor
Chatham
Straumey
Monomoy
COHASSET ROCKS
Boston
Cambridge
Salem
Gloucester
Plymouth
Jones River
Blue Hills
Manomet
Bass River
Barnstable Harbor

THE LANDFALL.

ACCEPTING the discovery of America by Northmen about A. D. 1000, — doubted only by those who have not had the leisure and opportunity patiently to examine the evidence bearing upon the subject, — and recognizing it as settled, that somewhere within a fortnight's sail to the southwest of Greenland there must be the Vineland of Leif, so long the theme of fireside story, of tradition, of record in the Sagas, in the relation of Adam of Bremen, and in the church archives touching the departure of Bishop Erik Gnupsson[1] to Vineland, — the question is one, *not of the reality of discovery, but of locality.*

To Humboldt, its place was between Boston and New York. According to Rafn, Leif Erikson set up his houses — the earliest Norse dwellings in New England — on the shores of Narragansett Bay. The following paper rests on the conviction that Leif did not go to the south of Cape Cod, but built his houses within the limits of the present city of Cambridge, on the banks of the river Charles, not far from its entrance into Massachusetts Bay, at Boston. How can we find

Where Leif first made Land?

Geographical position is expressed in terms of latitude and longitude, — that is, in distance counted in degrees and fractions from the equator toward the pole, and in distance in degrees and fractions from an accepted meridian crossing this line at right angles. For example, Cambridge Observatory is so many degrees, minutes, and seconds of latitude from the equator; and

[1] The story of the appointment of Bishop Erik Upsi (Gnupsson) to missionary service in Vineland in 1121 is a matter of well-known record, preserved in the archives of the Vatican.

so many degrees of longitude, or hours and fractions, west from the Observatory at Greenwich, England: furnished with these terms and a modern globe, we at once find the site of the Cambridge Observatory. This is an easy task. With our geographical situation along a north and south ocean shore, which substantially replaces the longitude, we have but one term — the latitude — to find. But the problem of the discovery by Northmen is one reaching back to times when there was no Greenwich Observatory, and to people who had no written language; who knew little or nothing of the equator or of globes, and to whom the oceanic world was the North Atlantic. Even with the latitude only to ascertain, one wonders how there could have been left to us a record of the discovered region that might be interpreted, with precision, after nine hundred years.

Bearing upon this question, there are, in the Icelandic History of the Discovery of America — the Vineland Sagas — hints of the coast-line and topography, of the vegetation, animal life, climate, the length of the shortest day of the year, the logs of the ships, and the diaries, more or less complete, of the chief persons connected with the Landfall and colonization of Vineland. All these contribute to the determination of the latitude.

Besides the writers who have found evidence of the presence of the Northmen in Massachusetts and Rhode Island, there have long been learned men who held to the notion that Vineland should be sought farther north.

Of the regions to which Vineland has been assigned by authorities that accept the fact of the discovery, but are not agreed as to its latitude, the extremes are the coast of Labrador from Cape Chudleigh — the entrance to Hudson's Straits — to Belle Isle, and the coast of southeastern New England.

These two regions are greatly contrasted in their topography and hydrography. They are unlike in their relative maximum growth of trees and shrubbery. The coast of Labrador has no beaches, no forests, — only stunted birches, low pines (evergreen, coniferous trees), and shrubbery, — no meadows, and little or no arable land; but it has bold, rocky shores, and lofty mountains, and long Arctic winters, and ice-bound coasts for more

than half the year, while southeastern New England has extensive beaches, forests, meadows, land that may be cultivated, low mountains only, — or hills of a few hundred feet, — winters of moderate duration, and not infrequently the ground for considerable periods quite free from snow, while the larger harbors are rarely frozen over.

Vegetation.

Beside these more general contrasts, there are, or were, in the field of vegetation two special ones of great significance.

In *Vineland*, wherever that may have been, *Indian corn* (maize) grew wild, — *sowed itself*, as the stories of the discovery (the Northern Sagas) say. (Beamish.)

It was called "*mayes*, like Virginia *wheat*," by Capt. John Smith, and "Indian wheat" by De Soto. Indian corn (*Zea Mays*) is indigenous in America, and ripens under favorable circumstances. It was found here by the Spaniards: Coronado ate of it at Zuñi in 1537–1540; De Soto found it in 1541 in our present Gulf States. In southeastern New England it ripens: Champlain found it along our coast in 1604–5; Capt. John Smith saw it growing on the islands in Boston harbor in 1614; the Pilgrims found it near Provincetown in 1620; Higginson writes of its having been planted and growing well in 1629; Winthrop was glad to purchase it of Indians in 1630.

In *Labrador* Indian corn does not ripen; it cannot, of course, grow *wild*. Why? *Unripe seeds do not germinate.*

Again, in the *Vineland* of the Northmen, according to the descriptions of the country given in the Sagas, *grapes grew wild*, and were found in great abundance. Hence the name of the country, — *Vineland.*

Grapes *grow wild* in southeastern New England.

Grapes *do not grow* in Labrador.

The first point, then, so far as vegetation is concerned, is that Labrador *could not have been* the Vineland where *forests* prevailed, and where *corn and grapes grew wild.*

The second point is, that what is now southeastern New England *might have held* the Vineland of the Northmen, so far as the *forests and grapes and corn* are concerned.

Climate.

On the subject of climate as influencing vegetation there is other evidence.

> Opposite Greenland [that is in Labrador] there are such hard frosts that it is not habitable, so far as is known. — *Icelandic School History; Antiquitates Americanæ*, p. 283.

What was true when this was written is scarcely less true to-day. The shores of Labrador are only scantily peopled along the sea, and are ice-bound far toward the season of summer. In southeastern New England some winters were so mild that cattle did not require to be housed. (Vineland Sagas.) What was true of eastern Massachusetts nine hundred years ago is true to-day. The winter of 1888–1889 was so mild that in Cambridge the snow scarcely interfered with grazing, and cattle might have lived in open fields upon the grass as it grew and ripened on the sward.[1]

The third point is, that Labrador, so far as climate is concerned, could not have been the Vineland of the Sagas.

The fourth point is, that so far as relates to climate, Vineland might have been in southeastern New England.

[1] The translation of the passages relating to the season of winter may not be the best. One cannot say what the finer shades of meaning of the Icelandic words may have been. But the Latin terms chosen by Rafn and Peringskjöld, as equivalents, present no difficulty. Rafn gives: "Nullis incidentibus algoribus hiemalibus." Peringskjöld gives: "Nec gelu ullum hiemis esset." The phrases are equivalent to saying simply that "*the winter was mild.*"

Let us glance at historic records.

It is recorded in the diary of the Apostle Eliot and his colleague Danforth as follows: "1646. This year winter was one of the mildest that we ever had; no snow all winter long, no sharp weather. . . . We never had a bad day to goe preach to the Indians all this winter."

The winter of 1774-1775 was mild. There was ploughing, and the peach-trees were in blossom on the 19th of April, — the day of the battle of Lexington.

The mean temperature of the winters for nineteen years just past, as taken from the United States Signal Service Station of Boston, has been for December, 30.2° Fah.; January, 26.2°; February, 27.7°; March, 33 7°, — an average for the four months of 29.5°.

70°
65°
HUDSONS STR
UNGAVA
OR
SOUTH BAY

70° 65° 60°

HUDSONS STRAIT

D A V

S T R

UNGAVA or SOUTH BAY

U N G A V A

B A Y

Bay of Hopes Advance

Green I.

Long I.

C. Chudleigh

Ukuiksoak R.

Ikkerasaksoak R.

Ashlashallik B.

Aglooriuk I.

Annatuk I.

Kangiata I.

Nellerutiak I.

C. Mugford

Saddle I.

Newcastle P.

Hare I.

Okkak

Harrison

Cape Ray, the Sugar Loaf bearing S.E. distant 9 miles.

Sugar Loaf

Scatari Island, the Lighthouse bearing W.N.W. distant 1 mile.

Flint Island, the Lighthouse bearing N.W. by W. distant 18 miles.

C. Percy

Northerly Current in Spring and Summer accompanied by numerous

ROCKY BOUNDARY

B R I T I S H

P O S S E S S I O N S

ANTICOSTI

GULF OF ST LAWRENCE

GASPÉ

NEWFOUND

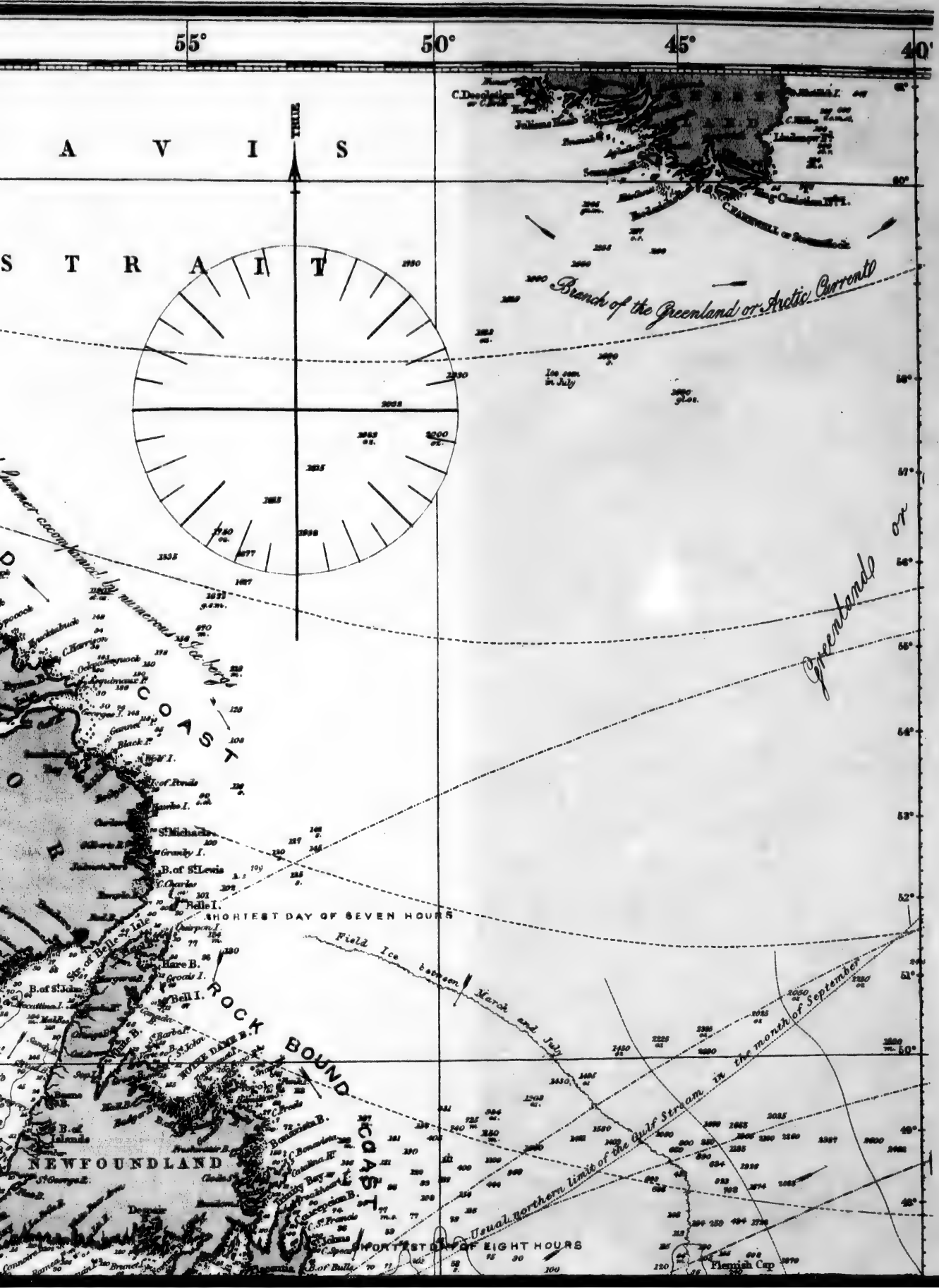
B. of Islands

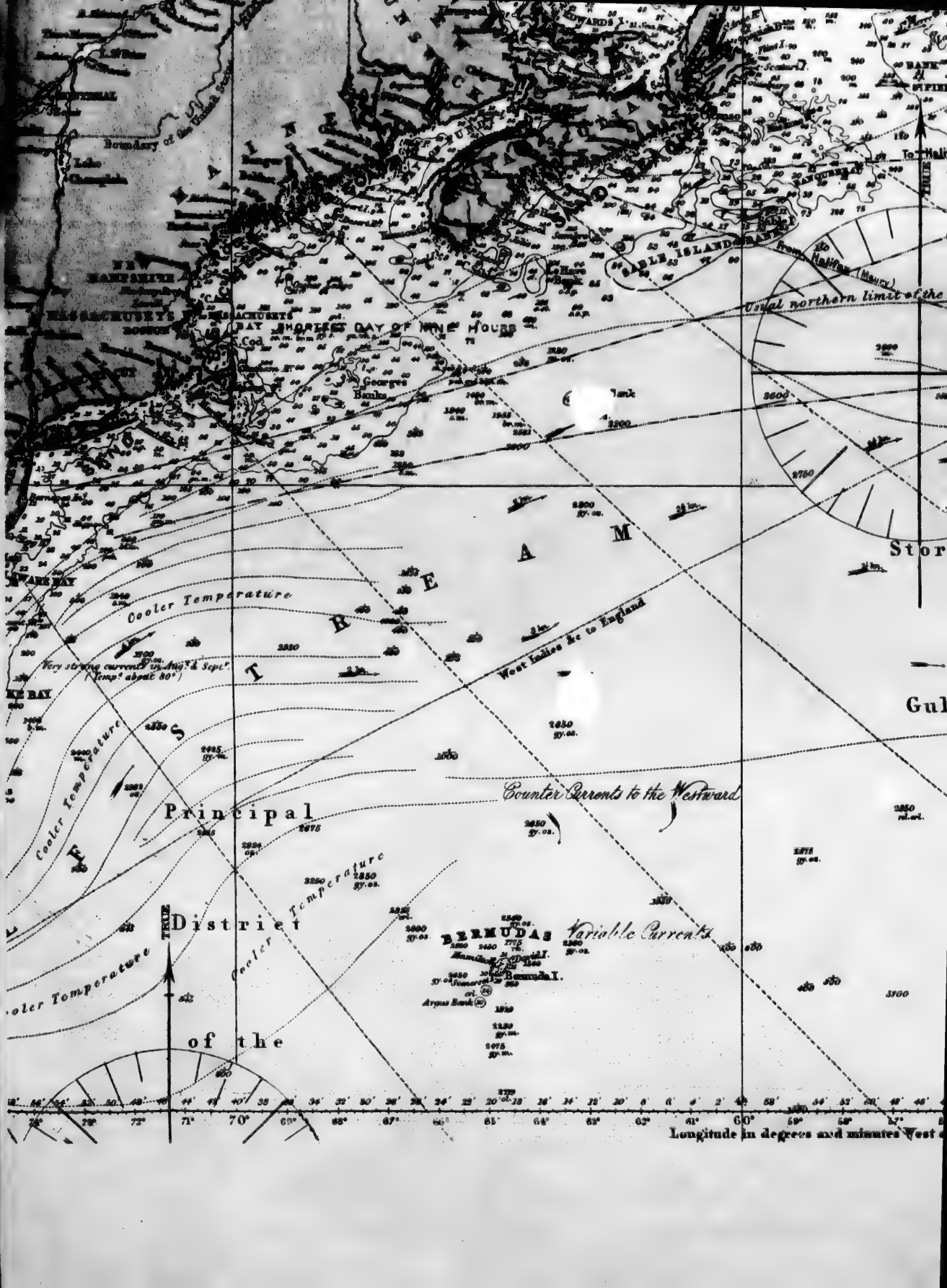
Port au Port B.

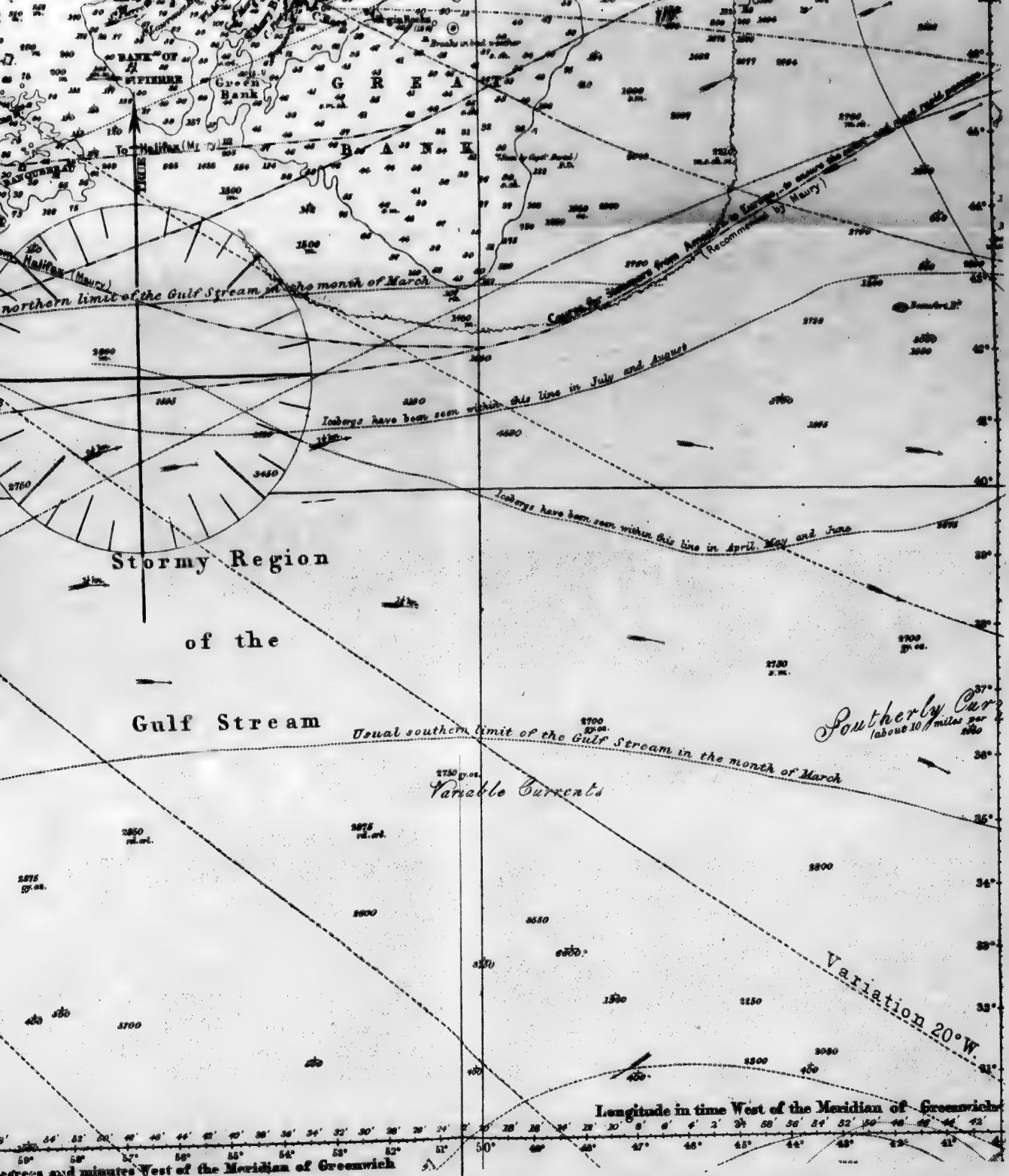
B. of St John

Bay of Belle Isle

Magdalen Islds


55°
50°
45°
40°
A V I S
S T R A I T
Branch of the Greenland or Arctic Current
Greenland or
Ice seen in July
Ice accompanied by numerous Ice bergs
COAST
ROCK BOUND
C. Desolation
Belle I.
Bell I.
Hare B.
Groais I.
B. of St. Lewis
B. of St. John
St. Michaels
Grandy I.
Black I.
Fogo I.
Bonavista B.
Trinity Bay
Conception B.
St. Francis
B. of Bulls
NEWFOUNDLAND
Degrasse
SHORTEST DAY OF SEVEN HOURS
Field Ice between March and July
Usual northern limits of the Gulf Stream in the month of September
LONGEST DAY OF EIGHT HOURS
Flemish Cap


Boundary of the United States
Lake Champlain
NEW HAMPSHIRE
MASSACHUSETTS
BOSTON
Cape Cod
BAY SHORTEST DAY OF NINE HOURS
St Georges Banks
NEWPORT BAY
Cooler Temperature
Very strong currents in Aug.st & Sept.r (Temp.e about 80°)
Cooler Temperature
Cooler Temperature
Cooler Temperature
Cooler Temperature
Principal
District
of the
TRUE
West Indies &c to England
Counter Currents to the Westward
Variable Currents
BERMUDAS
Bermuda I.
Argus Bank
BANK
SABLE ISLAND BANK
Usual northern limit of the
Stor
Gul
Longitude in degrees and minutes West


G R E A T
B A N K
Green Bank
BANK OF St PIERRE
To Halifax (Mr Maury)
To Halifax (Maury)
northern limit of the Gulf Stream in the month of March
Icebergs have been seen within this line in July and August
Icebergs have been seen within this line in April, May and June
Stormy Region
of the
Gulf Stream
Usual southern limit of the Gulf Stream in the month of March
Variable Currents
Southerly Cur
about 10 miles per
Variation 20° W.
Longitude in time West of the Meridian of Greenwich
egrees and minutes West of the Meridian of Greenwich

Length of the Day.

Another branch of evidence is in the length of the shortest day of the year in Vineland. On this the most eminent scholars have differed. Let us see on what the question rests.

We are familiar with the steadily decreasing elevation of the sun at midday as autumn advances, until about the 21st of December, when he pauses and turns again to ascend. At this time our day has its least length. This day, to our south, all the way to a point some 23° 28′ south of the equator, would be longer than it is here. North of us it would be shorter. Nice observation and a little calculation would enable one to tell how far north from the equator he is, if note is taken of the time between sunrise and sunset of the shortest day, — the 21st of December.

Now, this observation of the length of the shortest day in Vineland, on the occasion of their first visit, was made by the Northmen, but unhappily in terms which by the most eminent Icelandic scholars have not been interpreted alike; as a consequence, there has not been agreement among them as to the length of the shortest day, and of course the latitude of Vineland has not been fixed from this relation.

The most important of these opinions gave six hours as the minimum length of the shortest day in the year at Vineland, and nine hours as the maximum length. Intermediate lengths have been suggested, — as seven hours and eight, — and also an estimated length greater than nine hours. But it would take one too far to consider more than two of these estimates. I will take that of six hours and that of nine hours. These days would be composed each of one half on either side of midday. In one case the half would be three hours long, and in the other the half would be four hours and a half long. In the one case the whole day between sunrise and sunset would be six hours, and in the other nine hours long.

The single sentence in the Saga, or half sentence, on which the decision of the question is balanced, is this: "The sun shines there on *eykt* and *dagmal* on the shortest day of the year."

The other half of the sentence is: "Day and night were more nearly equal in Vineland than in Greenland." This latter fragment has weight, as showing the difficulty of accepting for Vineland the shortest day as one of six hours. The day and night, in that case, would *not* be *more nearly equal*, as the south of Greenland and the north of Vineland would be in the *same* latitude.

The condition of the problem of the latitude of Vineland, as determined by the shortest day, may be thus summed up: —

Rask, in a letter written December, 1831, to Mr. Wheaton, our Minister at Copenhagen, pronounced it practically impossible of solution. Bishop Sveinson, of Skalholt, did not understand it. Torfæus, sent to him by the King of Denmark to be instructed as to the meaning of *eyktarstad* and *dagmalastad*, at first thought the day to be six hours long. Forster interpreted the passage in the Saga to mean *eight* hours, — a notion later held by Torfæus. Vidalin, and after him Finn Jónsson, Rafn, and Finn Magnussen, held the day to be nine hours long.

This subject was discussed in the Appendix to my Address at the unveiling of the statue to Leif in Boston in 1887. My effort was needlessly elaborate. I there attempted a solution of the question of the time of *eykt*, which has been so often sought. It depended largely on whether *eyktarstad* was a *particular hour* or the *end* of a particular hour, and was practically settled when Vidalin found, in the passage in Snorri's "Edda," that at Reykholt autumn ends and winter begins at sunset at the time of *eykt*. Sunset is essentially a *point* of time, and not an *hour:* all lexicographers are agreed on this. The beginning of winter, at Reykholt, the residence of Snorri Sturlason, where the above observation was made, was in the week including the middle of October. The point or time of *eykt* by modern reckoning would be ascertained by a determination of the time of sunset or sunrise; they are alike equidistant from midday. They are *points* of time, not *hours*. To find this the astronomer Bishop Thorlacius was instructed to observe the time of sunrise and sunset at Reykholt on the first Saturday occurring between the 11th and the 17th of October. One was found to occur at half-past seven in the morning, and the other at

half-past four in the afternoon. The one was *dagmalastad*, the time of breakfast; the other, *eyktarstad*, the time of the afternoon lunch, at Reykholt.

Professor Storm has arrived at the conclusion that as the time of *eykt* varies with the latitude in Norway, it is therefore of no value in determining the latitude of Vineland. Vigfusson mentions that *eykt*, the afternoon lunch, occurs in Norway — he does not mention the degree of latitude — at half-past three. At the home of Björnsen, in the region of interior Norway, Gudbrandsdal, it is now at about five o'clock. In the neighborhood of Christiania it is at half-past five. The Church seems, doubtless for well-considered reasons, to have tried to make *eykt* coincident with *nona* (the ninth hour), at three o'clock.

It is not remarkable that Professor Storm came to the conviction that Leif's observation that on the shortest day in Vineland the sun shone on *eykt* and *dagmal*, was of no value in determining its latitude. But in this deduction of Professor Storm a consideration of domestic habit has momentarily escaped him; its significance will be apparent.

Of Icelandic life we have an authoritative picture in Henderson.

In 1814 and 1815 a Scotch gentleman, Dr. Henderson, went on horseback, attended by an adequate escort with suitable equipment, entirely around the coast of Iceland, and crossed the country in various directions four times. He had, as a scholar and philanthropist, supervised the printing of the Bible in Icelandic, and as the agent of the British and Foreign Bible Society, undertaken the distribution of the Bible to such families of Iceland as had not before possessed it. It became his duty to visit the clergy and learned men, including the officials, and also the people of all ranks in their homes. This labor occupied him, except during the winter, for two years. To no Englishman or Scotchman probably, before or since, has it been possible to become better acquainted with the general cultivation, the habits, the domestic life, the inherited ways, the usages, of the Icelandic people, than he was. His opportunities do not seem ever to have been equalled by any man of any nationality. He published his journal; in that he remarks: —

"The Norwegians who first went over to Iceland were sprung from some of the most distinguished families in the land of their nativity. . . . Their predominant character is that of unsuspecting frankness, pious contentment, and a steady liveliness of temperament, combined with a strength of intellect and acuteness of mind seldom to be met with in other parts of the world. Their *language, dress, and mode of life have been invariably the same during a period of nine centuries.*"

EYKTARSTAD *and* DAGMALASTAD.

What do these old Norse words, *eyktarstad* and *dagmalastad*, mean? One of them, the latter, is still in use in Iceland. We can see its meaning without an effort. *Dag* means "day," early morning; *mal* means "meal;" *stad* or *tad* means "time" or "tide." Early morning — meal-time — breakfast varies, as to precisely when it is served, with domestic habits and social classes; but it is a *morning* meal.

About *eyktarstad* there has been a vast amount of discussion. The root of the word is *eykt*. This was held by a great authority in Icelandic matters — Finn Magnussen — to mean "eighth." But Professor Vigfusson, of Oxford, England, in his "Icelandic Dictionary," says "*eykt* has nothing to do with *atta*," the Icelandic word for "eighth."[1] Vigfusson also says: "In Norway *ykt* means a luncheon

[1] There are reasons for hesitating about accepting the conclusion of Vigfusson. The origin of this system of divisions of three hours each seems a natural one, and of very early date.

In the "Book of Sun Dials," George Bell & Sons, London, 1889, page 18, Introduction, the Rev. D. H. Haigh, in a paper before the Yorkshire Archæological Society (Journal, vol. v part xvii.) is authority for the following: —

"The octaval system is of very ancient origin. We find in Job xxiii. 8, 9, allusion made to a man with his face toward the sunrising, looking before, behind, to the right hand and to the left, or, as it is rendered by the Targum, 'rising, setting, glowing, hiding,' corresponding with the four cardinal points; and the courses of the day and night were similarly divided into four parts. This the Chaldæans subdivided by three. The four in their hands became twelve; in those of the Egyptians, Greeks and Romans, twenty-four. But the Northmen — nor they alone, for the same practice has been found to exist in parts of Hindustan and in Burmah — held to the four great divisions of time, dividing and subdividing them as follows: —

"1. *Morgen*, sun E. N. E. to E. S. E. = 1 eikt, or tide [Old English] = 2 stundr = 4½ A. M. to 7½ A. M.
"2. *Daer*, sun E. S. E. to W. S. W. = 3 eikts, or tides = 6 stundr = 7½ A. M. to 4½ P. M.
"3. *Attan*, sun W. S. W. to W. N. W. = 1 eikt, or tide = 2 stundr = 4½ P. M. to 7½ P. M.
"4. *Nott*, sun W. N. W. to E. N. E. = 3 eikts, or tides = 6 stundr = 7½ P. M. to 4½ A. M."

"Mr. Haigh continues: "From the hours allotted to Morgen and Nott, it would seem that this system took its rise in Lat. 42° N., the Caucasian home of the Aryan race, light and darkness being at the summer solstice about fifteen and nine hours respectively."

This gives a day between 7.30 A. M. and 4.30 P. M. of nine hours, which is the length of the shortest day in the latitude of Boston. It is a piece of independent evidence of the accuracy of the views of Vidalin, Rafn, and Finn Magnusson.

In Iceland and the Faroe Islands the octaval division still exists. Sir Richard Burton, in his "Ultima Thule," written in 1878, tells us that day-night is divided by the Faroese into eight, and by the Icelanders into twelve, seven of the latter being three hours each, and the remaining two an hour and a half, — which practically corresponds with the eight tides of the Norsemen, if the subdivision of one portion be allowed for, while the names of three divisions agree with those of the ancient days. In Iceland, also, the primitive mode of measuring time by the sun's passage over natural objects was still in vogue as late as 1813-1814, when Dr. Henderson visited that country: "The only dial in use was the natural horizon of each township, divided into eight equal parts, — by mountain peaks when such were situated conveniently, and by pyramids of stone where natural marks

taken at about half-past three o'clock in the afternoon."[1] The ancient Edda says *eykt* occurred at sunset at the beginning of winter, — the middle of October (11th–17th). Half-past three — if *eykt* coincides with "sunset" — would give a day seven hours long. But this sunset of the Edda, according to astronomical observations occurs at half-past four, which would make the day nine hours long.

It is not remarkable that a family in which was such enterprise and intrepidity, not to say turbulence of spirit, as characterized Erik and his family, should have found its way from Norway to Iceland.

Most of the emigration about the end of the ninth century, it is said, was from the region about Trondhjem, and between that neighborhood and the Sognefjord, which is in the general latitude of Greenland and lower Iceland. Erik's earlier residence was in the northern part of Iceland; but he went out to Greenland from Schnefellsnes, the southern promontory of Breidafjord, not more than a degree of latitude above that of Reykholt. The *time* of *eykt*, the afternoon lunch, was naturally about the same in the region from which he emigrated that it was at Snorri's home. The time of *eykt* was fixed by the relative measures of day and night, the climate, the *requirements of their lives*, and the employments of husbandry in which almost the entire people passed their days.

Now, Leif's father (Eirik Raude) and his family resided in Iceland down to 985. Leif was a lad whose years, judging from his later career,

were wanting. These marks, natural or artificial, had been fixed by the first colonists, and the latter had been renewed and kept in repair from generation to generation." * Twelve years before Dr. Henderson's journey, an indefatigable antiquarian wanderer, Arentz, visited the district of Sondfjörd [Sognefjörd?] in Norway, and has left a record of the eight tides of day-night which were in use among the people there, and of the regulation thereof, by marks on hill and valley, so accurately that midday was seldom at variance with clock time. That the octaval system was still in vogue at the time of the Norman Conquest is shown by the Kirkdale dial, the most interesting and complete of all the early specimens

[1] That it occurs at a later hour in southern Norway supports the conviction of Professor Storm that the time varies with the latitude. But the latitude of Nidaros, of southern Iceland, and Eriksfjörd in Greenland were all included within two or three degrees.

* Vigfusson says: "These day-marks are traditional on every farm; and many of them, no doubt, date from the earliest settlers. Arngrimsson confirms this statement. It was the immemorial practice in Norway.

may have been twelve or fifteen at the time of the emigration. The habits of domestic Iceland, in regard to meal-times as in regard to their general lives, were fixed. The family after their arrival at Brattahlid, in Greenland, naturally obeyed these habits, although they were somewhat farther south than they had been in Iceland; and Leif carried the *habit* of lunch at half-past four with him to Vineland, — as did all his company. There, to him and to them, the *time* of *eykt* was an absolutely settled thing. It was the *time in the afternoon when the appetite, spontaneously obeying its lifelong habit*, demanded food. The men of his company obeyed the habit in which they had been trained and to which they, like Eirik's family, had been accustomed in Iceland. The defining of the length of the shortest day of the year as one including *dagmal* and *eykt* between sunrise and sunset, appealed directly and clearly to what every one knew. The Saga-men who told the story of Leif's expedition after its return, at firesides and gatherings for two hundred years and more, — down to the time the relations were committed to writing, — indicated by *eykt* what to us is understood when one says *half-past-four in the afternoon*.

Between *eykt*, occurring at half-past four in the afternoon, and the correspondingly distant time from midday, *dagmal*, occurring at half-past seven in the morning, were nine hours; from which the latitude of Vineland has been calculated.

If one reflects for a moment, it will be seen that the time of *eykt* and the corresponding length of the shortest day in Vineland at the last rest on the *astronomical observations* of Bishop Thorlacius.

The fifth point is that the place where Leif passed his winter in Vineland was in the *forty-third* degree of north latitude, the latitude of Massachusetts Bay.

The precise latitude indicated by the shortest day of nine hours, as accepted by Rafn, was 41° 24′ 10″. But the precession of the equinoxes in the interval since Leif's time has been calculated (see paper by Storm); and it results in making the site to which Leif's observation applies to

be in 42° 21′.[1] The site of Leif's houses, as I find their traces, independent of the question of the testimony of the region of the shortest day, is in 42° 22′ 30″. This near coincidence is of course accidental. Without watches and the habits that go with them, such precision is not supposable. (The subject will be resumed further on.)

Longitude.

Whether or not we accept as conclusive the argument that the latitude of Vineland is in the region of the forty-second and forty-third degrees, some twelve days' sail southwest of Greenland, there can be no doubt as to the longitude, as Vineland must be on the Atlantic coast. The maps of the sixteenth century uniformly give the coast in this latitude, southwest of Greenland, somewhere between the 290th and 310th meridians, counting eastward from the dividing line between Spanish and Portuguese claims as zero, established by the Pope, at Ferro, the most western of the Canaries. These ancient degrees of longitude include the seacoast of Massachusetts, lying between 70° and 71° west from Greenwich, of English reckoning.

The Ships' Logs.

We come now to the evidence of the region of Vineland as determined by what may be called the logs of the discoverers in connection with accepted and well-known ancient and modern geography.

If the Northmen were ignorant of the terms "latitude" and "longitude," they had something like an equivalent for them in *direction* and *succession* and *sailing time* from known points. A glance at their method will enable us to see the range of its service. Here is an example of it.

In what appears to be a summary of early Icelandic school geography, which it is safe to say includes only what was regarded by instructors as established geographical truth, occurs the following: —

[1] Corrected for precession of the equinoxes and refraction, by Mr. Geelmuyden, of Copenhagen.

"*Now it is to be told what lies opposite Greenland. . . . There are such hard frosts there that it is not habitable, so far as is known.*"

This gives the character of what we recognize as Labrador.

"*South of Greenland is Helluland; next is Markland; from thence it is not far to Vineland the Good.*" [1]

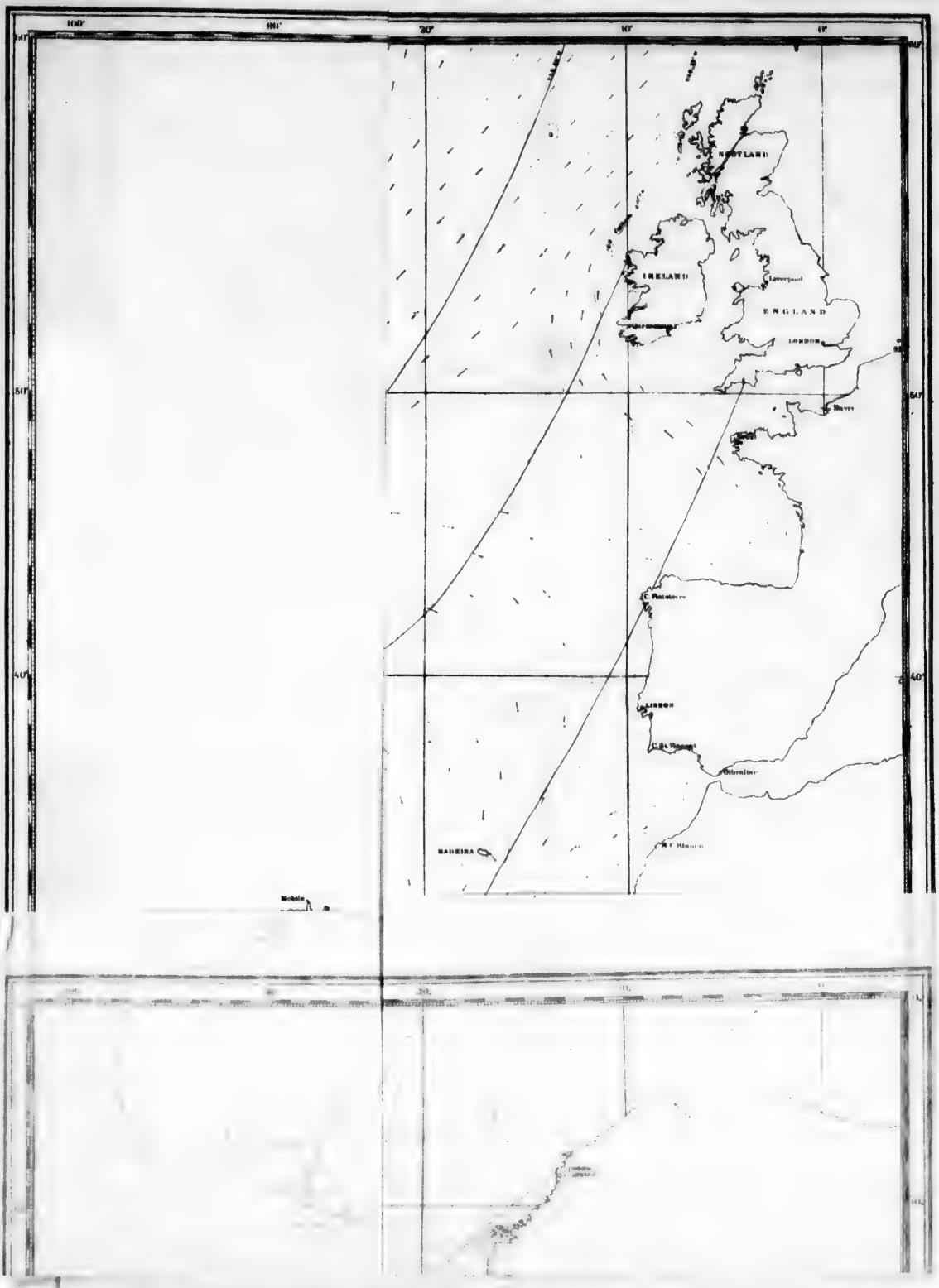
This takes for granted that as certainly as there was a Greenland, there was a Vineland. Its general direction from Greenland is given; it is to the southerly, and two countries of unknown extent intervene between it and Greenland. The geographical position of Greenland we know. To the east of it lies Iceland, defined in the old geography as being north of Ireland; and to the east of Iceland is Norway. These three are nearly along an east and west line. To the direct south of Greenland there is only open sea; but at the west of south there are three projections, — capes, or islands, or countries. How far from Greenland, or how far from one another these projections are, the ancient record does not tell.

Looking at our maps of to-day, we see at the southwest of Greenland in succession three great projections from the mainland into the Atlantic, — Newfoundland, Nova Scotia, and Cape Cod. May these be the three before named, — Helluland, Markland, and Vineland, in the old geography?

These three undetermined, and the other three well known, — six points in all, — are on a long, irregular curve going out from Norway and Iceland westerly, and then southwesterly to Vineland. Let us glance at them side by side.

	In the old geography we have		In our modern maps we have	
	Greenland, Iceland, Norway.		Greenland, Iceland, Norway.	
N.				
W.	*Helluland.*		Newfoundland.	**E.**
	Markland.		Nova Scotia.	
	Vineland.		Cape Cod.	
S.				

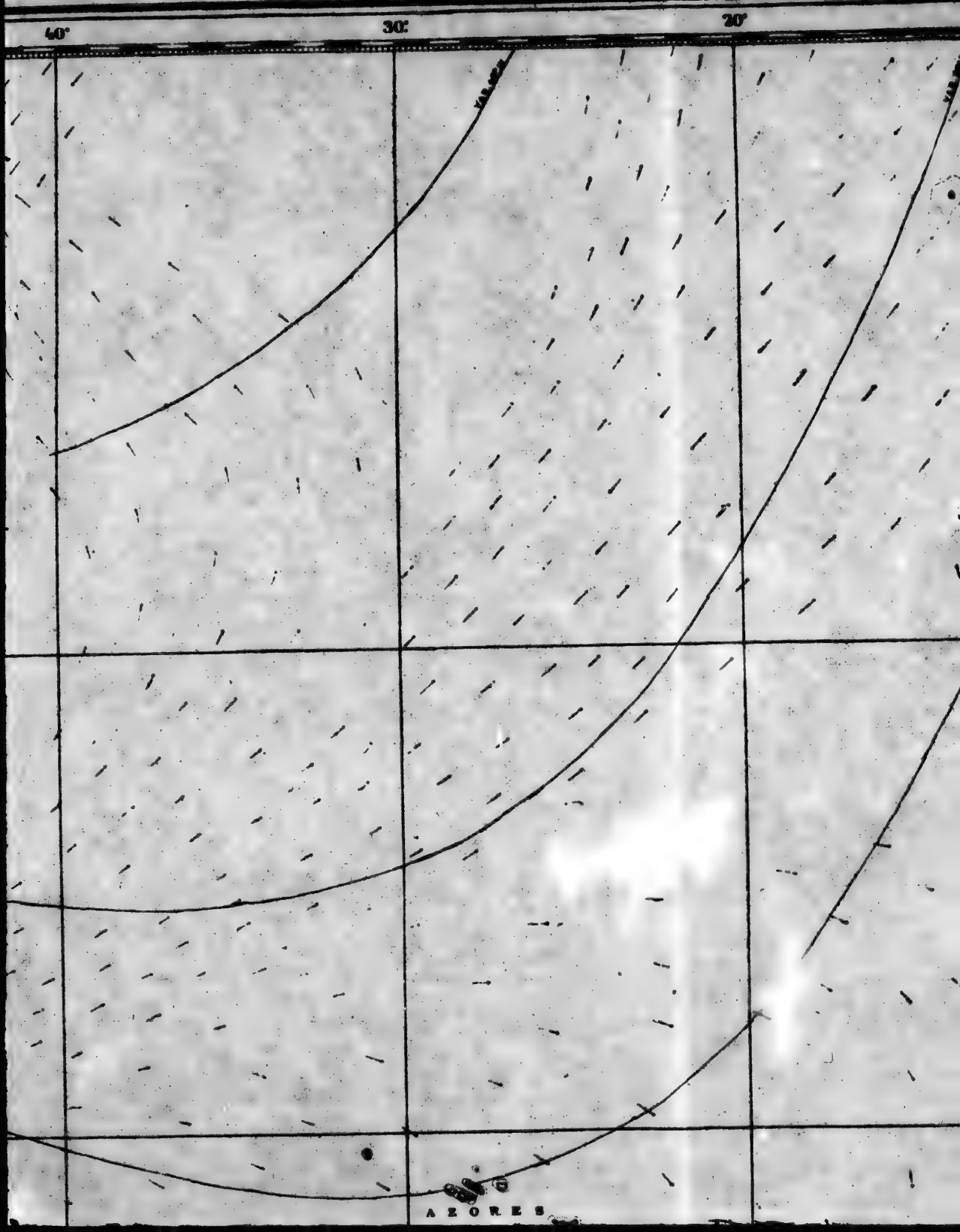
[1] Antiquitates Americanæ, p. 283.


SCOTLAND
IRELAND
ENGLAND
LONDON
LISBON
MADEIRA

The Variation is for 1885
100°
90°
80°
50°
40°
VINELAND
Portland
BOSTON
NEW YORK
PHILADELPHIA
BALTIMORE
WASHINGTON

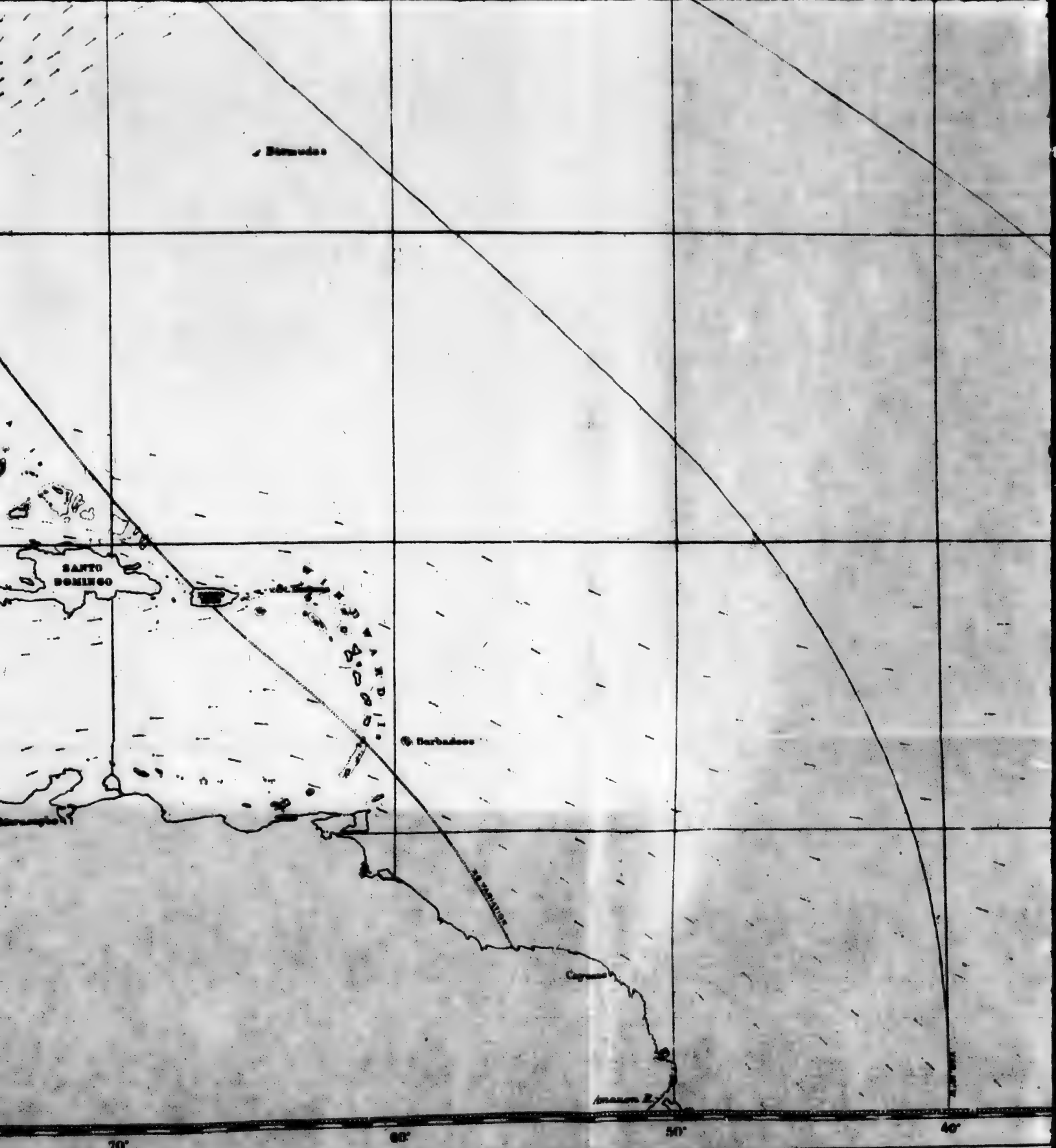
PILOT CHART OF THE NORTH ATLA

LANTIC OCEAN

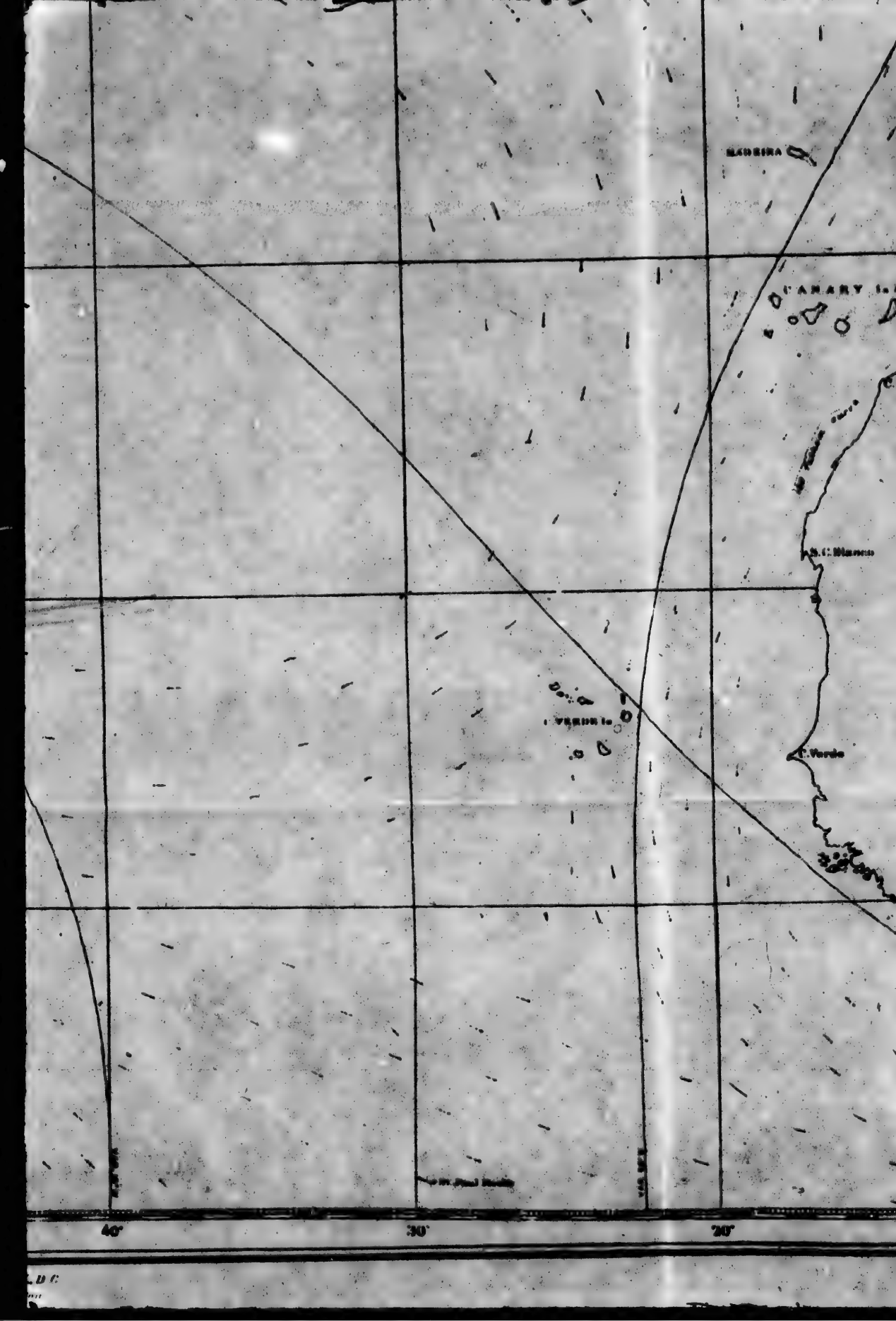


10°
0°
54°
SCOTLAND
IRELAND
ENGLAND
54°
40°

C. Hatteras
Smithville
Charleston
Savannah
Mobile
NEW ORLEANS
Galveston
Key West
CUBA
Campeche
Vera Cruz
Belize
SANTO DOMINGO
30°
20°
10°
0°
90°
80°
70°



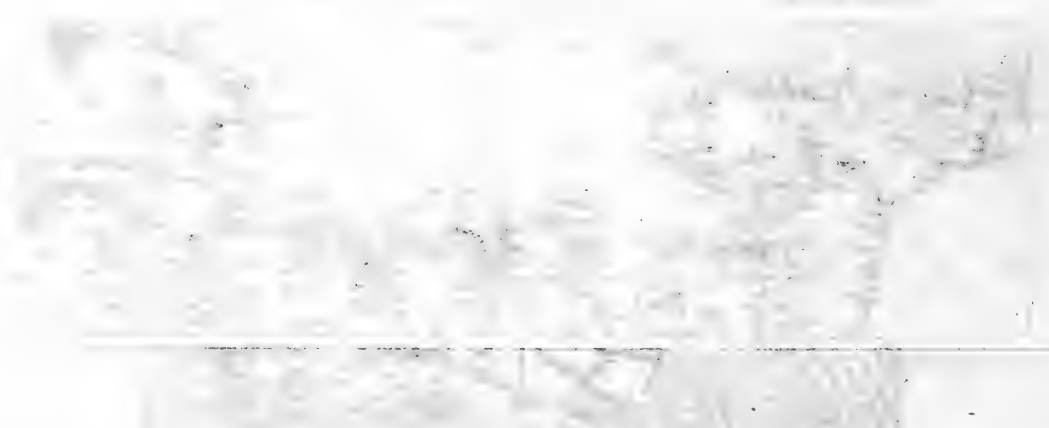
Published Monthly at the Hydrographic Office, Navy Department, Washington, D.C.
J.R. Bartlett, Commander, U.S.N. Hydrographer to the Bureau of Navigation


MADEIRA
C. Blanco
C. Verde
40°
30°
20°

MADEIRA
CANARY Is.
C. Bojador
C. Blanco
C. Verde
Sierra Leone
C. Palmas
30°
20°
10°
0°

TO SHOW THAT THE VINLAND OF LEIF WAS BETWEEN CAPE ANN AND CAPE COD.

TO SHOW THAT THE VINLAND OF LEIF WAS BETWEEN CAPE ANN AND CAPE COD.



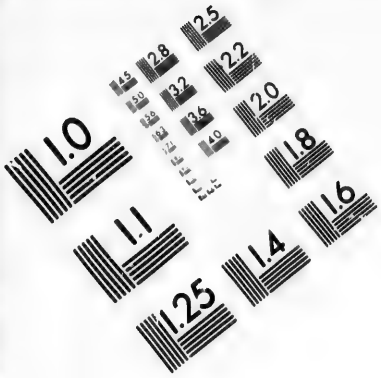
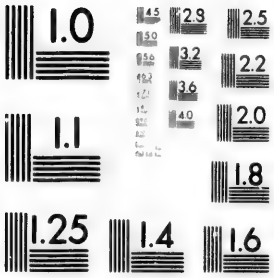
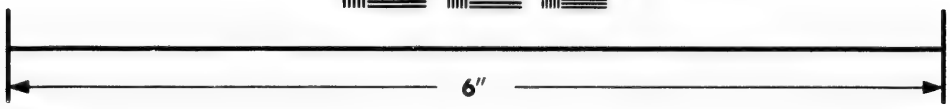
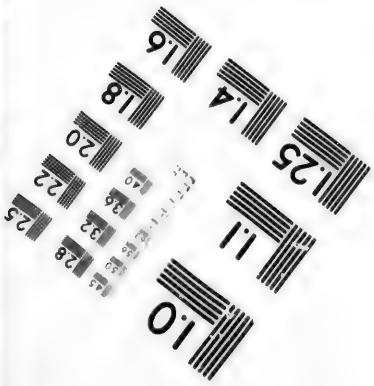
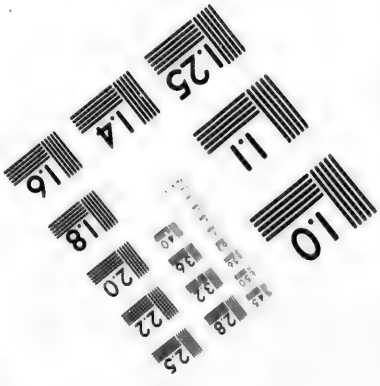


IMAGE EVALUATION TEST TARGET (MT-3)





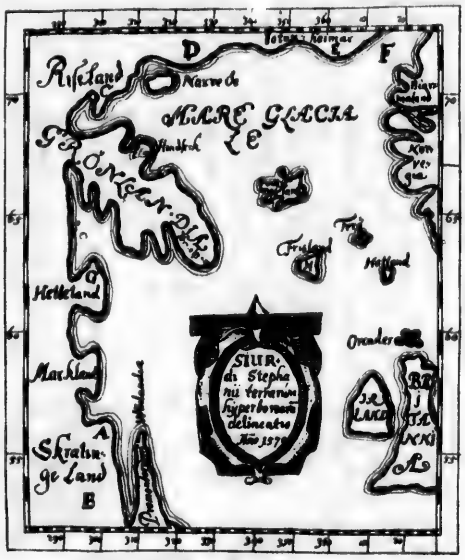




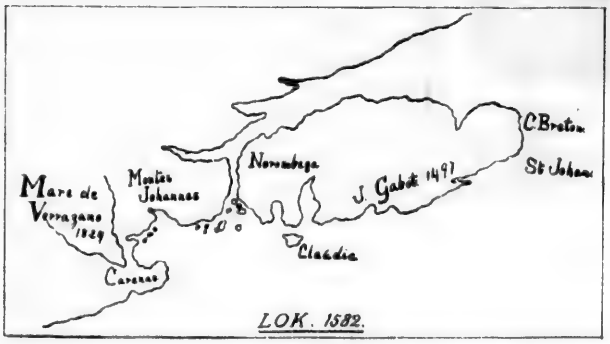
Photographic Sciences Corporation

23 WEST MAIN STREET
WEBSTER, N.Y. 14580
(716) 872-4503

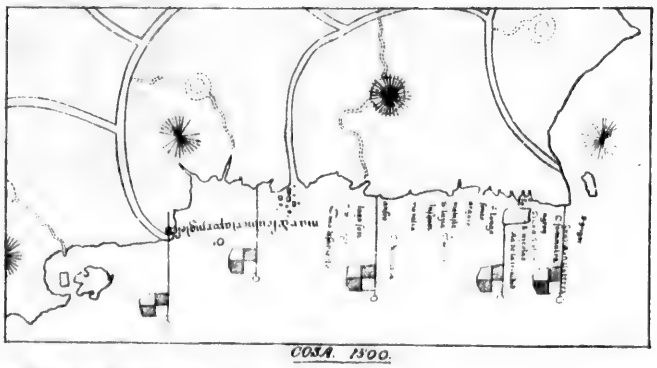
TO SHOW THAT THE VINLAND OF LEIF WAS BETWEEN CAPE ANN AND CAPE COD.



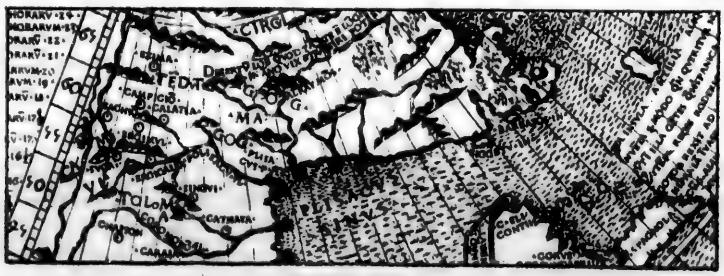
STEPHANIUS. 1570.



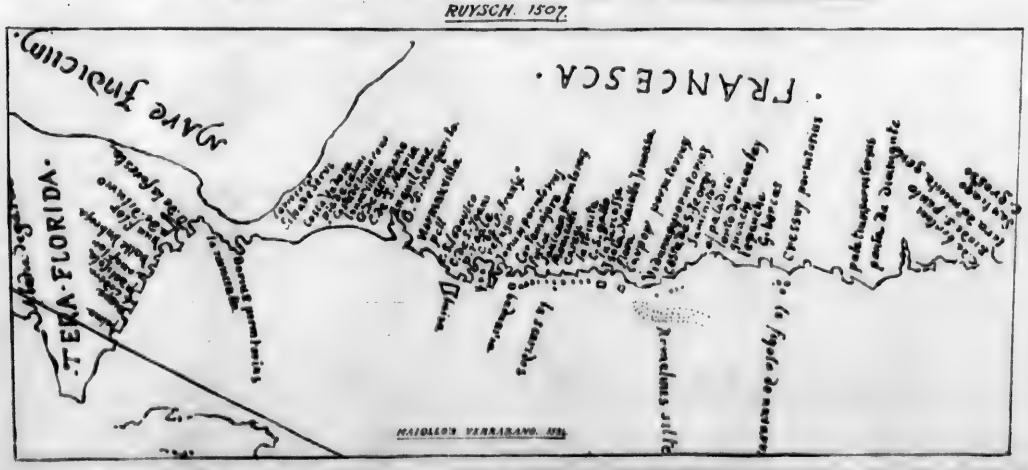
LOK. 1582.

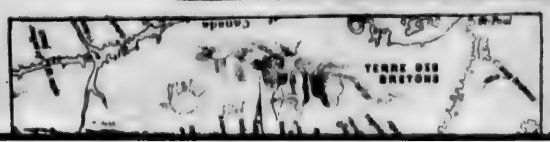


COSA. 1500.

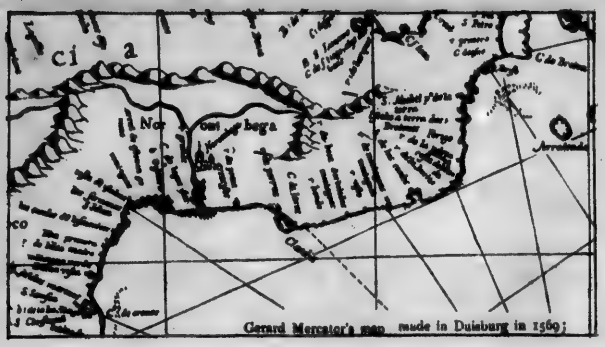


RUYSCH. 1507.

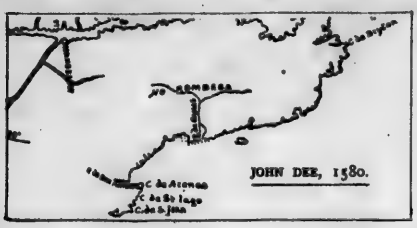


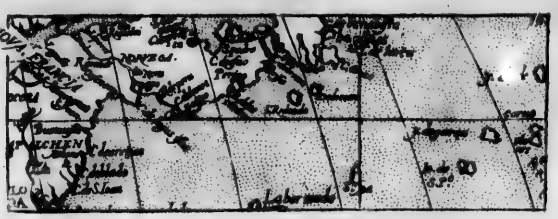


THEVET of about 1586.

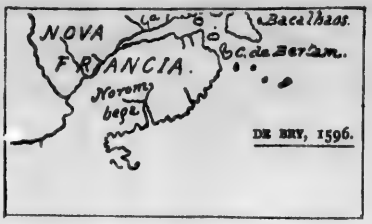


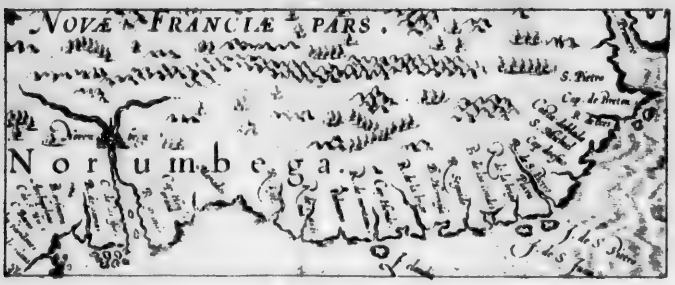
FROM THE MOLINEAUX GLOBE. 1592.



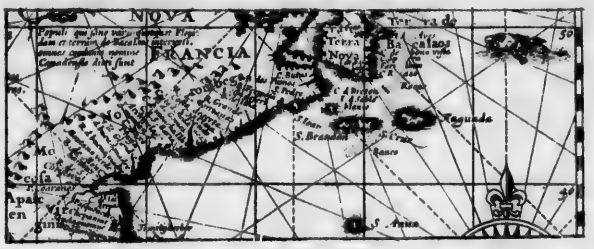


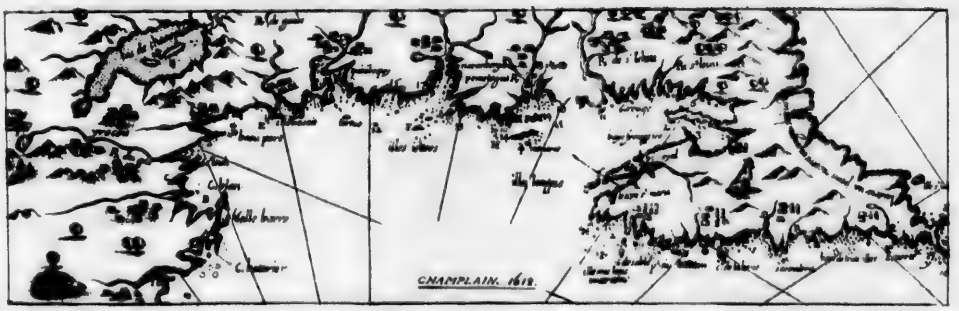
SOLIS. 1598

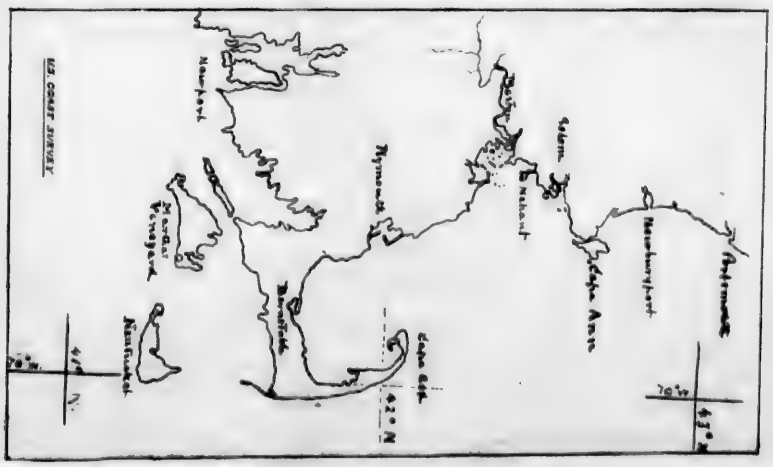




WYTFLEET. 1597.







The first three names in horizontal succession in either column are the same, and well known. They bear to-day the names they bore nine hundred years ago; their latitude and longitude are well known.

The second three names in either column are borne by projections, provinces, or regions lying to the southerly of Greenland. In the first column they are unknown; in the second they are known.

Let us consider the relative distances of these projections and their directions from one another in each column.

They were subjects of instruction in the schools. At Skalholt, not far from the modern Reykjavik, in very early times was established one of the two great institutions of learning of Iceland. The other was at Holum. One of the most learned and renowned officers of instruction at Skalholt was Stephanius, who, to assist in teaching his classes the history of Icelandic discoveries, prepared a map, of which a copy has been preserved, and is herewith presented to the reader.

On this we see the names of the localities just mentioned as occurring in the old school geography. We see their conceived relative positions, and their estimated relative distances apart, coinciding with those in the first of the columns just presented. Norway, Iceland, and Greenland are on a line running easterly and westerly. Greenland, Helluland, Markland, and Vineland are on a curve, the chord of which bears

to the west of south. We see that from Greenland to Helluland is farther than from the nearest point of the latter to Markland; and we also see that the latitudes of Stephanius were a subject of estimate only.

This map and the extracts from the old school geography give us three points, and their succession and general direction from Greenland. So far there is not enough to relieve us from the possibility that Helluland, Markland, and Vineland might have been parts of Labrador. We have not as yet enough to determine *where* the three points were, but enough to show that they had *a basis* in *trusted* history.

Before turning to that, let us consider *how much* we still need of what we have not, to enable us to determine the *place of Vineland.*

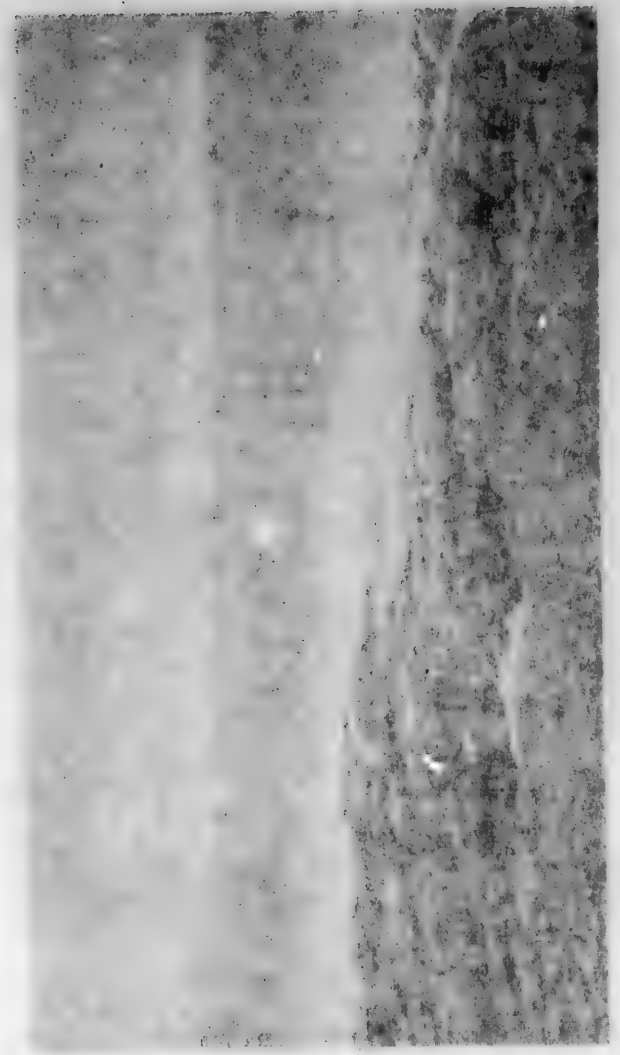
The Greenland of the old geography and of Stephanius's map is, as already intimated, the Greenland which *we know*, whose southernmost point is Cape Farewell, in latitude 60° 10′ N. Southwesterly from it stretches the western Atlantic shore. On our modern maps we see precisely what there is of districts, or great capes, or projections into the Atlantic along this shore. About this there can be no mistake; they stand out in marked prominence. They are, as we have seen, Newfoundland, Nova Scotia, and Cape Cod. They correspond with Helluland, Markland, and Vineland, in general direction from Greenland, in succession, in number, and in relative position. What more do we need to enable us to say that the two sets of *threes* are one and the same set, and that the Cape Cod of to-day was the Promontorium Vinlandiæ of Stephanius? The one thing still lacking is this: We need the equivalent of the latitude of Promontorium Vinlandiæ. We need *distances* in addition to *directions* and *succession.*

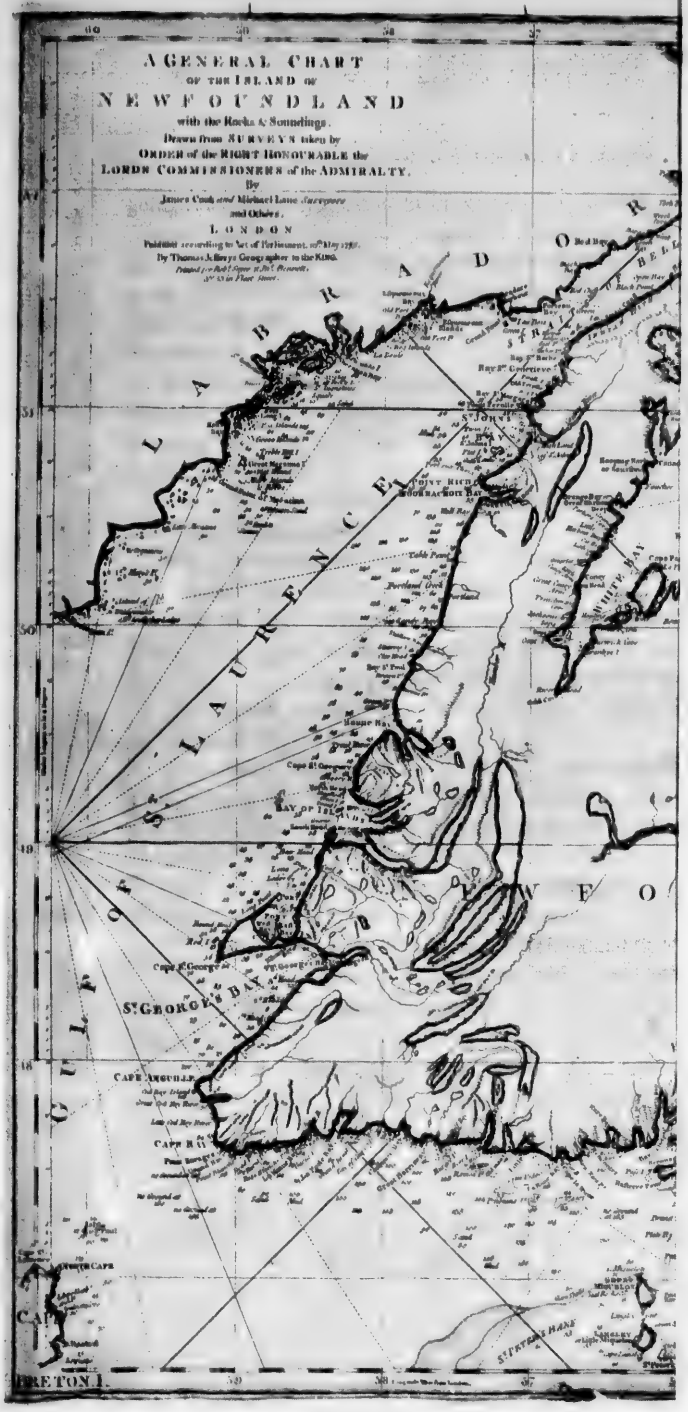
Happily, something of this kind has been preserved to us in the account of the discovery of Vineland.

The Logs agree.

In this it is mentioned that two navigators — one sailing northeasterly and ending his voyage in Greenland, and the other sailing southwesterly,

FLAT ROCKS ON THE EAST COAST OF NEWFOUNDLAND (HELLULAND
WITH ICEBERG IN THE DISTANCE




A GENERAL CHART
OF THE ISLAND OF
NEWFOUNDLAND
with the Rocks & Soundings
Drawn from SURVEYS taken by
ORDER of the RIGHT HONOURABLE the
LORDS COMMISSIONERS of the ADMIRALTY,
By
James Cook and Michael Lane Surveyors
and Others.
LONDON
Published according to Act of Parliament, 20th May 1775.
By Thomas Jefferys Geographer to the KING.
LABRADOR
ST LAURENCE
GULF OF
St GEORGE'S BAY
CAPE ANGUILLE
CAPE RAY
ST PETERS HARB
BRETON I.

A GENERAL CHART
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LABRADOR
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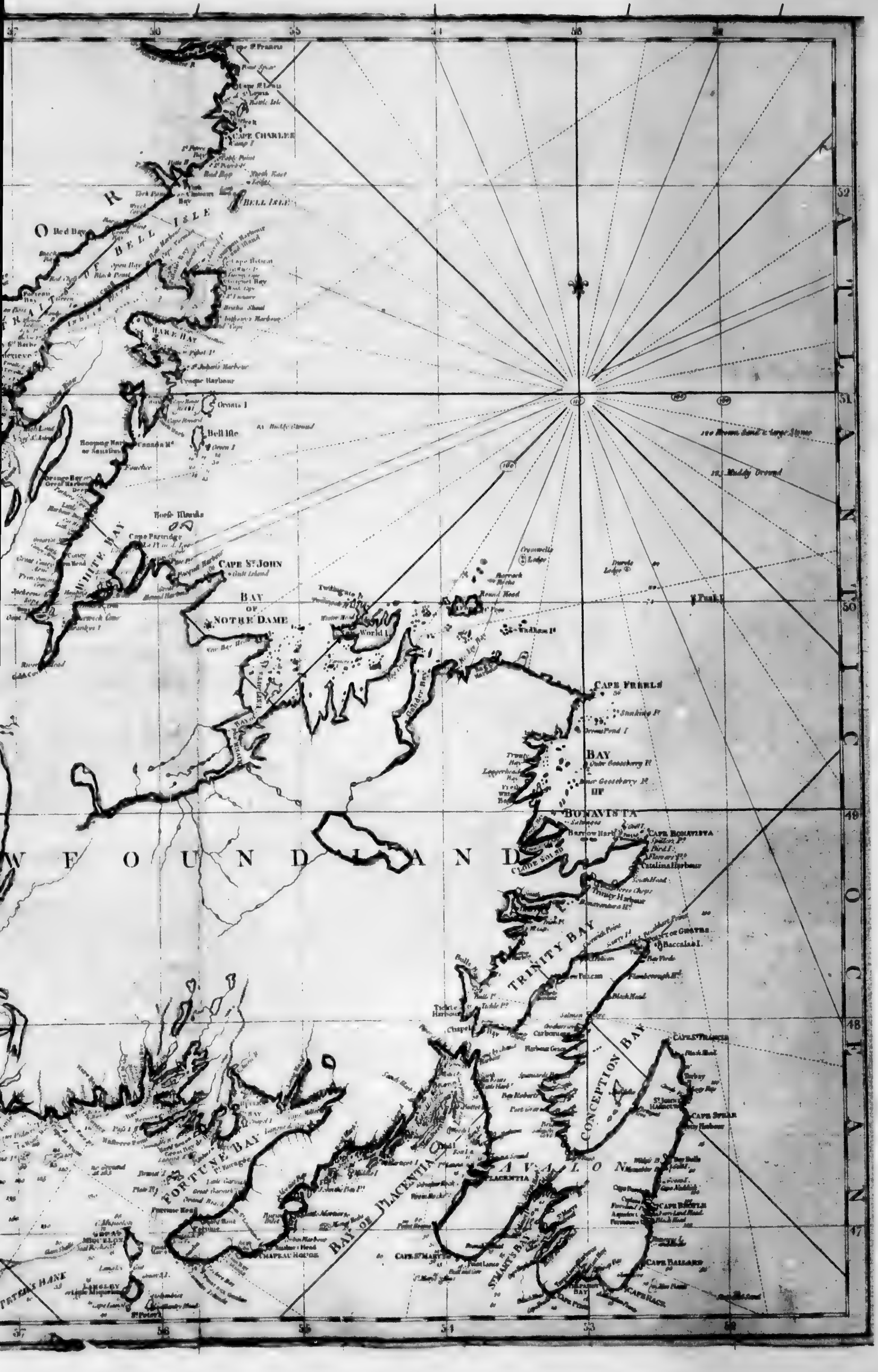
NEWFOUNDLAND
ST GEORGE'S BAY
CAPE ANGUILLE
CAPE RAY
BRETON I.
51
50
49
48



CAPE CHARLES
BELL ISLE
STRAIT OF BELL ISLE
HARE BAY
Croque Harbour
Groais I.
Bell Isle
Horse Islands
Cape Partridge
WHITE BAY
CAPE ST. JOHN
BAY OF NOTRE DAME
World I.
Fogo I.
CAPE FREELS
Stinking Is.
BAY
BONAVISTA
CAPE BONAVISTA
Catalina Harbour
Trinity Harbour
TRINITY BAY
Baccalao I.
Flowers Pt.
Carbonear
Harbour Grace
CONCEPTION BAY
CAPE ST. FRANCIS
St. John's Harbour
CAPE SPEAR
AVALON
PLACENTIA
BAY OF PLACENTIA
FORTUNE BAY
Great Miquelon
Langley
St. Peter's Bank
CAPE BALLARD
CAPE RACE
ST. MARY'S BAY
W F O U N D L A N D
100 Brown Sand & large Stones
125 Muddy Ground
52
51
50
49
48
47

going out from Greenland with purpose to reverse the voyage of the first — observed three great projections; the second navigator verifying the observations of the first, and in addition giving names to the projections. These names were the names given in the fragment of Icelandic school geography and on Stephanius's map, — Helluland, Markland, and Vineland.

But the history gives us more. It gives in general terms the *time* required and the *direction for sailing from one point to the next*: and it gives the appearance of the projections, — their physical and geographical characteristics.

Let us apply the descriptions given in this history to these projections as we know them to-day.

The *first* projection encountered in sailing southward from Greenland — Helluland — is described by its discoverer as *an island*, presenting *flat rocks* at the shore where the ship touched, and behind them, in the interior, snow-covered mountains. Being an island, it could not have been Labrador. It is called Icaria on the map of the Zeni.

The *second* — Markland — is described as being *without mountains; wooded, and skirted with sand-beaches.*

The *third* — Promontorium Vinlandiæ — is described as being *wooded*, having *low hills in the interior, extended sand-beaches*, and figured as having *a bay at the west*, opening out to the ocean on the north.

All this is from Icelandic history.

Now let us look at the geographical characteristics of what may be these same projections as we know them to-day.

The *first* projection is Newfoundland (Helluland?).

We present a photograph of the shore of Newfoundland in the neighborhood of the most prominent salient on the east coast, — St. John's, the Cape Speer (Spear) of Capt. John Rut, 1527.[1] In the offing an iceberg looms through the fog; there is no beach. The shore is an expansion of *flat rocks*. In the mist one sees a bold promontory on the right. The

[1] See letter to Henry VIII.; Purchas, vol. iii. p. 809.

100-fathom line closely approaches the shore.[1] Newfoundland is surrounded by water. Its length on the eastern face is three hundred and twenty miles.

In a valley in the interior not distant from St. John's (the capital and seaport), trees attaining to the maximum size, indicated in the accompanying photograph, are found in sheltered places. For the most part, the native soil of the southeasterly portion is covered with scattered shrubbery and rank grasses. Far in the interior and nearer the northwestern coast of the island are forests. There are mountains in the southern part, and snow-covered mountains in the northern part. The Sagas seem to make this distinction.

The *second* projection is *Nova Scotia* (Markland ?).

According to the Admiralty chart of Nova Scotia and Cape Breton (presented herewith), the trend of the southern coast is E. N. E. and W. S. W. This coast is the lee side of the land as regards glacial movement. Sable Island is what remains, above water, of a long moraine swept by the glaciers coming from the north, — the monument of countless wrecks and their cause. Much of Nova Scotia is bordered by sand-beaches and bluffs, as mentioned by Leif, which, it will be later observed, are wanting on the coast of Maine, as they are on the east coast of Newfoundland. The whole region is low, wooded along the coast, and without mountains. It is not an island.

The *third* projection is Cape Cod (Promontorium Vinlandiæ ?).

This region has been elaborately surveyed by the United States Government. I present, first, a comprehensive outline of the territory of the most southern of the three great projections, — extending from the mouth of the Merrimac to, and including, the entrance to Narragansett Bay; second, a detailed map of the peninsula of Cape Cod from the United States Coast Survey.

It will be seen that Cape Cod (Promontorium Vinlandiæ ?) is bordered by sand-beaches ; that it has small hills in the interior, but no mountains.

[1] See herewith the Admiralty chart by the great navigator and discoverer Capt. James Cook ; also chart, United States Hydrographical Bureau, is introduced later.

We are, let us remember, seeking now only for an equivalent of the *latitude*.

We have found, as the result of an examination of the charts of the Admiralty and United States Coast Survey and familiar modern history, that the first great projection southwest of Greenland — Newfoundland — is an island, and has *snow-covered mountains*, but *no sand-beaches;* that the second of the great projections — Nova Scotia — is girt about with *sand-beaches*, and has *no mountains;* and that the third of the great projections — Cape Cod — is bordered with *sand-beaches*, and is *without* mountains.

We are entirely safe in the conclusion, aside from the evidence in the succession of the projections, that Newfoundland *could not* have been the Vineland of the old Icelandic school geography. Why not? Because it has *snow-covered mountains* and *no* sand-beaches. For the same reasons it could not have been the Markland of the Sagas.

Vineland must then have been either Nova Scotia or Cape Cod, — both of which present *extended sand-beaches* and *no* mountains.

The Sagas.

Let us now look at the history to which we have been referring. It is contained in what have been called the Vineland Sagas.

They constitute a small body of Icelandic literature that has come down to us from the period of the events narrated, for a long time held in memory by frequent recitations, the habit of the people, and as part of a system of education, and sometimes for professional service, — transmitted from sire and matron to son and daughter as fireside entertainment and culture for a series of generations, and then, with the introduction of the art of writing, transferred to parchment.[1]

[1] Saga-men. The children of Iceland of our day (so I gather from native Icelanders) know of nothing more sacred than the duty of absolute accuracy in repeating a Saga. Rev. Dr. Henderson (1813-1814) dwells on the intellectual accomplishments in the humblest of the people as something without a parallel in his experience as a Briton. This finest sense of fidelity to the text of an author was in the olden time as trusted in Iceland as, according to Mr. Cushing, it is in our day in the Priesthood of Zuñi.

The decisions of the courts, the edicts of the Althing, the chronicles of kings and people, the

The Sagas on which it is assumed this old Icelandic geography, and Stephanius's map, and also the essential points of the earliest discovery of the coast of New England rest, were preserved in two families of distinction. One of them was that of Eirik Raude (Erik the Red), an Icelander of distinction; and the other was that of Thorfinn Karlsefni, a man of wealth, and a gentleman accredited as of royal descent.

That the trustworthiness of these Sagas relating to events said to have occurred nine hundred years ago should be called in question by those who have not carefully studied them, is natural. Nevertheless, we may for the present regard their trustworthiness as potential, and taking them on credit, proceed on the assumption that what they promise *may* be fulfilled; and if we should find their descriptions and predictions to be verified by facts, we shall then have no doubt of the actual trustworthiness of the Sagas.

The Thorfinn relations, as given in Rafn's "Antiquitates Americanæ," bear witness to the difficulties that have arisen to perplex translators and even the earliest scribes who collected and arranged the original traditions. The forms of expression in which this feeling of doubt is conveyed are familiar; such as, "They say," or, "Some men say," or, "It is said." There are, in the order of arrangement, palpable defects of sequence, — much to be criticised, undoubtedly, if we were considering the relations as typical models of historical writing; but as a collection of recorded verities in the history of an ancient people, to be studied not only for what is obvious, but for what may be found between the lines, they are of inestimable value. The departure of Thorfinn's fleet from Greenland is men-

genealogies and histories of families, the titles to estates, as held by the Saga-men, were trusted implicitly.

The summary of the Vineland Sagas, as given by Peringskjöld, differs so very little from that in the "Antiquitates" of Rafn that Laing remarks — and Mr. Arngrimsson as well — that both of them, with the exception of here and there another word for the same idea, are possibly copies of a common original by different scribes. As Mr. Cushing informs me he has heard long relations of a given romance by different members of the Zuñi Priesthood (Saga-men), which did not differ from one another by a word, it is quite conceivable that the Vineland Saga of Erik Raude, in Peringskjöld, and that preserved in the "Antiquitates" of Rafn, were written down from the lips of *different* Saga-men, and not improbably at different times.

tioned at least five times. The relations differ in the kind and variety of minutiæ which they have preserved. In some cases we have hearsay. The relators may have been — indeed must have been — on different ships; they did not visit the same places at the same time; there were several and various accounts of the same event. But notwithstanding all these drawbacks, the Sagas, closely studied, strengthen one another, and clear up what are obscurities to the superficial reader.

The Sagas have been accepted as in a sense historical by scholarly men, known to all as men of renown. Our ambassador to the Court of the King of Denmark many years ago, — Mr. Wheaton, afterward minister at Berlin, — investigated their claims, and trusted them. Humboldt investigated and accepted them. So did the geographer Kohl; so did Rafn, the Magnussens, Vigfusson, Konrad Maurer, Worsaae, Edward Everett, J. Eliot Cabot, B. F. De Costa, Nordenskjöld, and his Scandinavian contemporaries. They were accepted as traditions, held by men habitually truthful, of events that transpired some nine hundred years ago, and which some centuries later were committed to writing in the language of the relators and carefully preserved to the present time. The office of Saga-man was in a sense professional.

Not content with the general conclusion to which the most learned — perhaps one should say the most patient and thorough — in many fields of geographical, philosophical, and historical research had arrived before him, Prof. Gustav Storm, of the University of Christiania, with the original authorities before him, made the whole field of the Vineland Sagas a subject of prolonged and exhaustive analytical study.[1]

Professor Storm takes exception only to some minor points. His conclusions in regard to the trustworthiness of the Sagas of Eirik Raude and of Thorfinn Karlsefni are in every essential particular identical with

[1] Professor Storm has been engaged in this study for many years. Some ten years ago, he published a paper upon a subject of kindred interest. His more recent research, published in Copenhagen, I have had carefully translated into English by an accomplished Norwegian lady, Miss Ingeborg Rasmussen, now of Milwaukee, Wis., that I might have the latest results of scholarly research in this field.

those of Rafn, Worsaae, Humboldt, Wheaton, Kohl, J. Eliot Cabot, B. F. De Costa, and of all others, as Mr. Cabot remarks, "competent to form a judgment on them."

Professor Storm has pursued to their issues other important inquiries connected with the Northmen. He finds the story by the Prelate Adam of Bremen of his interview with the King of Denmark in regard to Vineland, somewhere about 1070, — once questioned, then overlooked, then quite forgotten, and then taking its place in history, — to be entirely trustworthy. This is the relation: —

> "Besides, it was stated [by the King] that an island had been visited by many, lying in that ocean, which was called Vineland, because vines making excellent wine grew there spontaneously; cereals grew there without planting, of their own accord. This we know, not from fabulous reports, but by the certain testimony of the Danes."

Professor Storm discusses the story of Ari Marson, a kinsman of Erik the Red, which records a possible visit to America as early as 982; but it is foreign to the object of this paper.[1] So, too, he takes up the stories of Bjorn Asbrandsson and Gudleif Gudlaugsson; but they also belong to another field of inquiry.

The Southern Limit of the Vineland of Leif.

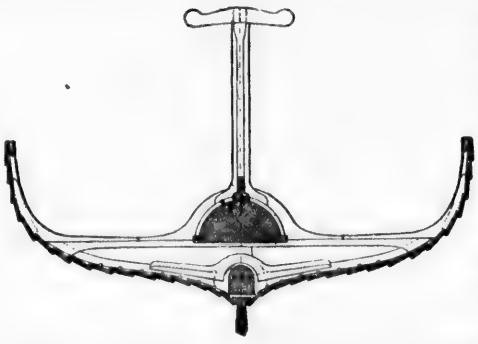
Before turning to the language of the Sagas, one thing further may be mentioned in determining the southern limit of our search for Vineland as given on Stephanius's map. Stephanius says: "Beyond Promontorium Vinlandiæ *was a great gulf, of which nothing was known.*" If Promontorium Vinlandiæ was the peninsula of Cape Cod, it follows that Vineland *must have been north of the forty-first degree.*

We have the Promontorium Vinlandiæ, with the bay wide-mouthed on the west, open to the north, corresponding with the Hook of Cape Cod.

Besides this, in a relation of the Saga, which we anticipate, it is mentioned that a merchant-ship of one of the Northmen was driven on a neck

[1] See also the learned discussion in great detail of the story of Ari Marson and Great Ireland, by Beauvois, at the Congress of Americanistes at Nancy in 1875.

and broke off its keel. To repair this — that is, to renew the keel — the vessel, Professor Mitchell thinks, was beached at high tide, careened, and the work done between tides.[1] The construction of the hull of a vessel of this period is exhibited in the drawing of the recently exhumed Gokstad Viking ship, which I saw in 1880, and which has been the subject of an elaborate paper by M. Nicolayson, of Christiania. I add, from Du Chaillu's "Viking Age," a cut showing the mode of attaching the keel. One sees how precisely the terms of the Saga apply. The keel was not merely *broken*, it was *broken off*. This beaching was possible on or near the interior shores of Cape Cod, just outside the Hook, or anywhere lower down the inner shore where the tide is some ten to twelve feet, *but not possible anywhere south of the peninsula of Cape Cod.*



Why? On Nantucket, opposite Buzzard's Bay, the tides will not permit it; and on Shelter Island, in Gardiner's Bay, the mean tide is less than three feet. In such depth a merchantship, with a complement of thirty to forty men, and construction providing for a cargo, *could not be careened* for repairs to its keel.

Professor Mitchell's view, however, if accepted, confirms Stephanius, and limits the southern range of our search for Vineland.

[1] This view, so very thoughtful of Professor Mitchell, is open to question, in the light of a stone tablet found in a grave across the Bay in Essex County, a *fac simile* of which appears on our title-page, and to which I shall later recur.

EXPEDITION OF BJARNI.

DRIFTING IN LONG NORTHEAST WINDS AND STORMS AND THE SOUTHERLY-SETTING ARCTIC CURRENT.[1]

BJARNI, a Norwegian merchant and ship-master, on a voyage in 985 from Iceland to Greenland, had been driven in a northeast storm, accompanied by fog and rain for many days, upon a low, wooded projection of the coast, having here and there little hillocks in the interior. He did not land, as the country did not look like Greenland, — which he had heard was a region of ice-covered mountains and little vegetation, — but sailed to the northeast, with a fair wind, for two days, when he came to another projection, also low, relatively without mountains, and wooded. Leaving this second projection without landing, and with the same favoring wind, after three days' sail he came on a high land, having snow-covered mountains, which proved to be an island, the nearest part of which was from three to four days' sail to the southwest of Greenland. After sailing three days more, under stress of canvas so great as to compel him to shorten sail, he reached Herjulfsness, the residence of his father, at the southern extremity of Greenland.

I here reproduce a part of a recent pilot-chart issued by the Government Hydrographical Bureau, on which is given the tracks of various derelicts, and of the great timber-raft that went to pieces Dec. 18, 1887, showing the course pursued by them in drifting; and, besides these, showing *the course of a buoy which broke loose from its moorings off Cape Race*, and after forty-six days was captured off Nantucket Shoals. Its course lay along, and just within, the margin of the Arctic current. (See arrows.) Its progress may have been hastened by a northeast wind, and it may have been retarded by a southwesterly wind. But the chances are that the record on the chart indicates very fairly the rate of the Arctic current, as, unless the wind was exactly with, or exactly in the teeth of, the course of the current, the buoy would have been blown into the Gulf Stream or toward the shore. Such a current, with the addition

[1] See Saga of Erik the Red in the Appendix.

of a northeasterly wind, Bjarni had.[1] Bjarni's story determines that the land he first saw after the long easterly storm — the same that Leif reaches as his most southern point — *was some fourteen days'* sail, with a fair wind, southwest from Greenland.

Dr. De Costa gives — on his tracing of Hieronymus Verrazano's map, made in the Vatican Library — *Rio des basses*, in the group of thirty-eight islands which his brother Giovanni counted in his voyage northward. Desimoni made it *Cabo des basas* in 1524. *Cabo de basses* and *B. des basses* occur also on the Dauphin map (Jomard), north of Terra Nova (one of the Penobscot group), so called, 1543.

The presence of this name, B. des Basses (Bass Harbor?), on the maps, and of other names, as of Frenchman's Bay and of Monte de Trigo[2] on Hieronymus Verra-

[1] In the case of John Rut, cited in my Address at the unveiling of the statue to Leif Erikson, in Boston, Oct. 29, 1887, and quoted from in the letter found in Purchas (vol. iii. p. 809), his ship was driven by a wind from east-northeast, which drove him obliquely into the Arctic current. His position at the beginning of the storm was in 53° north; longitude not definitely known. After some twenty days he found himself off Cape De Bas Harbor (Bass Harbor, Mount Desert), twenty-five leagues (Rut's estimate) north of St. John's Harbor (Gloucester, Mass.), in the forty-third degree, according to Allefonsce, from which place his letter was written.

[2] *Tri-juga*, — in allusion to the ancient chariot-races. See Hakluyt Society, William Strackey. By R. H. Major. I add the cuts showing how the group of three peaks seems, to one sailing by, to pass and be passed, as if in a race.

Fig 1.

Fig. 2.

Fig. 3.

Fig 4.

zano, Gastaldi, and Ruscelli, taken in connection with the presence of a Piedmont pilot with Capt. John Rut on the "Mary Guilford" in 1527, — who, with several sailors on shore with him, according to Ramusio, were put to death with frightful torture by the Indians in this neighborhood, — lends support to the notion that it was Giovanni Verrazano who perished hereabout and then, and *not* as a pirate in Spain, according to Buckingham Smith and Mr. Murphy.

Bjarni's log gives distances in nautical values. They require to be translated. But as we now know the distance from Belle Isle to Greenland, the path through which he had sailed, and the *times* during which he sailed from point to point throughout his route, we may arrive at a rough estimate of his *rate*.

From the most northern part of Newfoundland to Cape Farewell is about six hundred and ninety miles. This Bjarni sailed in three days and nights, — at the rate of about two hundred and thirty miles a day, or nearly ten miles an hour.[1]

From Cape Race to Belle Isle Bjarni sailed along the land, on the look out for any indication there might be of a channel, so as to be able to ascertain whether or not he was coasting an *island*, and therefore he did not record the time. (The distance from Cape Race to Belle Isle is three hundred and twenty miles.)

From Cape Sable, the low wooded land, to Cape Race, the high land of snowy mountains, Bjarni consumed three days and nights. His log states that "*they kept the sea for three days and nights, with a fine breeze from the southwest.*" The distance on the map, in right line, is the same from Cape Sable to Cape Race that it is from Belle Isle to Cape Farewell; and one version of the log records the same time for sailing the one stretch and the other.

From the southernmost land Bjarni had seen, — Promontorium Vinlandiæ, — the first he again saw was after sailing away two days and nights, with "the land on the larboard and their *sheet on the land side.*"

[1] The Saga translated from Peringskjöld gives the time as four dâys. It will later appear that three days is probably more nearly correct.

The land and the sheet on the larboard side indicate a wind from the southerly. Bjarni had been for many days in a frightful northeast storm accompanied by fog and rain, which had driven him from the neighborhood of Iceland through all the intervening sea — he did not know how far — to the neighborhood of Promontorium Vinlandiæ.[1] Such a storm must have had its counterpart to the far southwest. It had swept across the country. Fair weather had followed. The storm centre (the lowest barometer) had passed to the north of him. Later the breeze was "fine from the southwest," and later still became a gale. This summary of the meteorology, to which Bjarni was a witness, is a familiar one at the signal-service stations.

As a matter of course, about the time the storm centre passed to the northwest of him the wind was less strong where he was, and, as might be presumed, they were forty-eight hours in running from Promontorium Vinlandiæ to Markland (on our maps from Cape Cod to Cape Sable), — about two hundred and seventy-five miles, or scarcely six knots an hour.

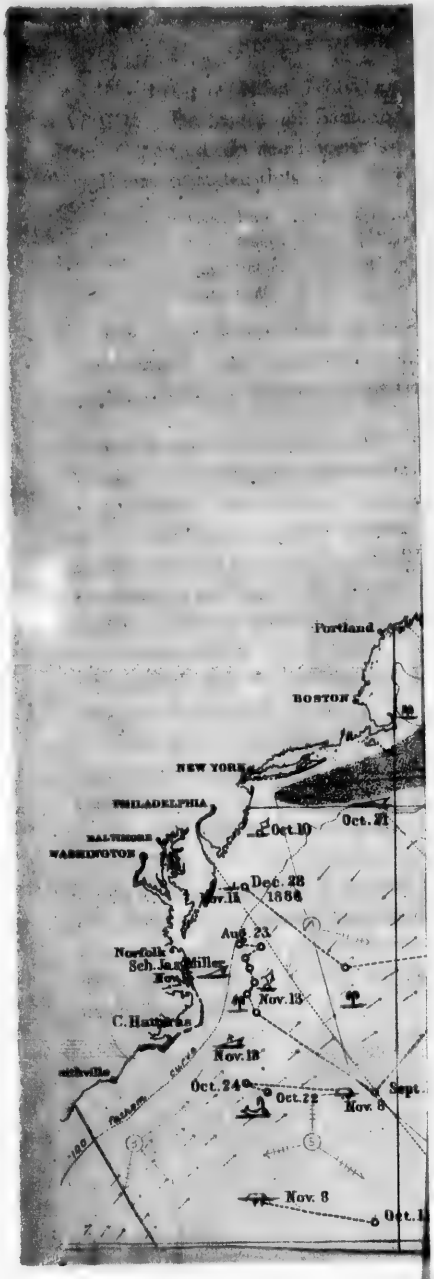
Let us now return to the equivalent of the latitude. Having the directions, we seek the distances. A part of them we know, because we know that Greenland and the island to the southerly of it — Newfoundland — were the Greenland and the Helluland which were familiar to Bjarni and Leif. They were familiar not only to them, but to their successors. Thorlacius maps them. So do others, before Torfæus wrote.[2]

The distance from Cape Race, where Bjarni, sailing to the northeast, first found high mountains, to Cape Farewell (Greenland) is in *latitude* more than *four fifths* of the whole distance from Promontorium Vinlandiæ (Cape Cod) to Greenland.

From Cape Farewell to Cape Race is, in right line, ten hundred and ninety statute miles; and in degrees of latitude it is 13° 30′, while from Cape Race to Cape Cod it is 4° 30′.

[1] See Stephanius's Map, page 29.

[2] See Tidskrift, 1885–1886.


Portland
BOSTON
NEW YORK
PHILADELPHIA
BALTIMORE
WASHINGTON
Oct. 10
Oct. 21
Dec. 28
1868
Aug. 23
Norfolk
Nov. 15
C. Hatteras
Nov. 13
Oct. 24
Oct. 22
Nov. 8
Sept.
Nov. 8
Oct. 1

NOVA SCOTIA
Halifax
Nov.13
Oct.10
Oct.23
Portland
BOSTON
Sept.3
Sept.27
NEW YORK
PHILADELPHIA
BALTIMORE
WASHINGTON
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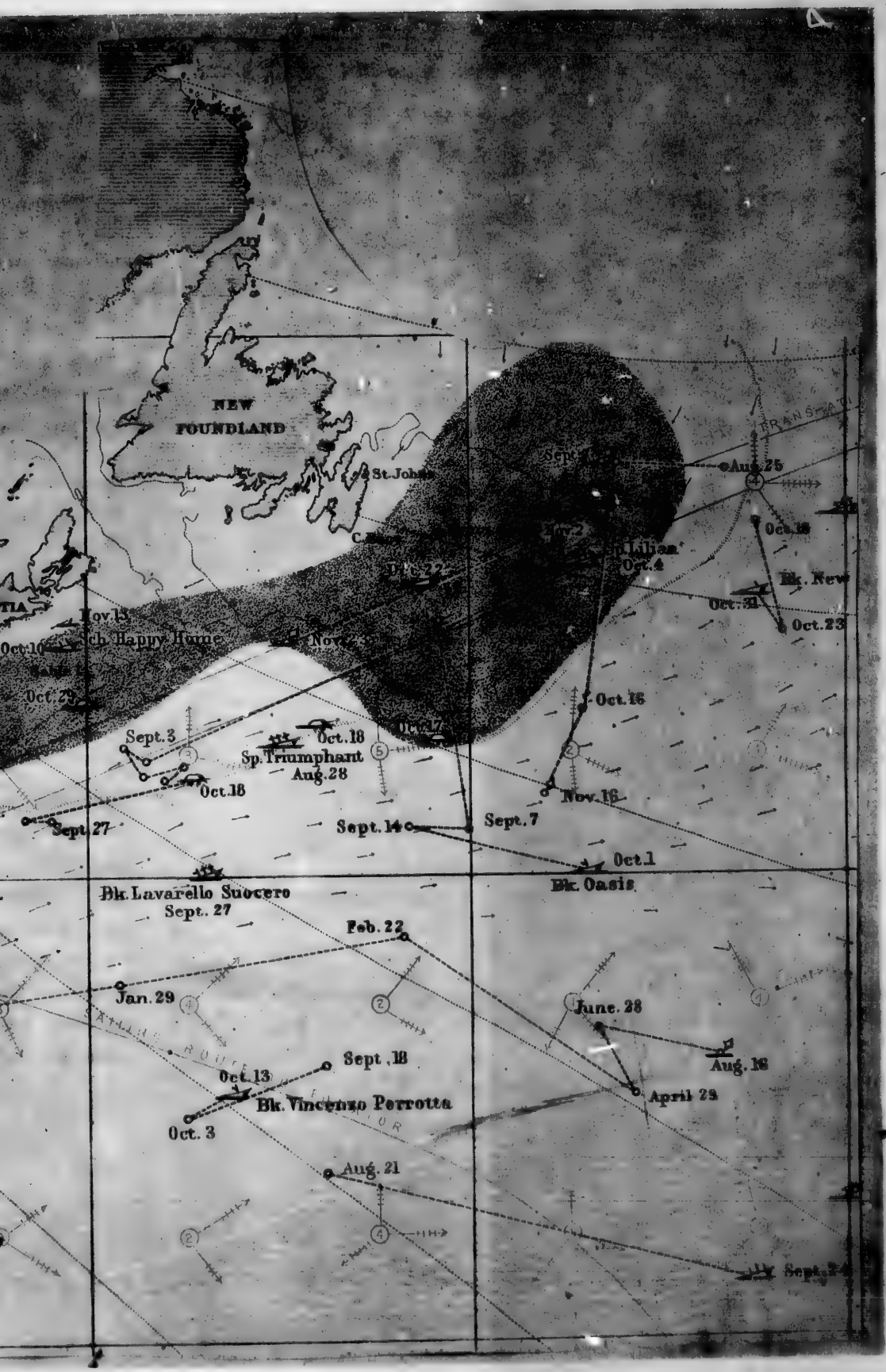

NEW
FOUNDLAND
St. Johns
Sept. 7
Aug. 25
Nov. 2
Sp. Lilian
Oct. 4
Oct. 18
Bk. New
Oct. 22
Oct. 23
Nov. 13
Oct. 10
Sch. Happy Home
Nov. 2
Oct. 29
Oct. 16
Sept. 3
Oct. 18
Sp. Triumphant
Aug. 28
Oct. 17
Oct. 18
Nov. 16
Sept. 27
Sept. 14
Sept. 7
Oct. 1
Bk. Oasis
Bk. Lavarello Suocero
Sept. 27
Feb. 22
Jan. 29
June. 28
Aug. 18
Sept. 18
Oct. 13
Bk. Vincenzo Perrotta
April 29
Oct. 3
Aug. 21
Sept. 24

The trend of Nova Scotia and Cape Breton is about E. N. E. and W. S. W.; but from Cape Sable to Cape Race it is nearer N. E. by E.; and from Cape Cod to Cape Race it is nearly N. E.

It may be stated thus: —

Cape Farewell	is in	60° 10′	Latitude, and	43°	Longitude.
Cape Race	„	46° 40′	„	„ 53° 10′	„
Cape Sable	„	43° 30′	„	„ 65° 10′	
Cape Cod	„	42° 10′	„	„ 70° 10′	

The total northing between Cape Cod and Cape Sable is only 1° 20′, and between Cape Cod and Cape Race 4° 30′. But the difference in *longitude* between Vineland (Cape Cod) and Helluland (Cape Race) is 17°.

Let us now recall the object of immediate search. It is the *latitude* of Vineland. We have brought it down to a range of 4° 30′ of latitude, — that is, it is within *extreme limits of about three hundred miles north and south*, along a northeasterly and southwesterly shore of the Atlantic. This assumes for the moment that the Vineland of Leif did not extend *south of the elbow* of the peninsula of Cape Cod. This Stephanius said, and this we have stated in passing on page 37; but we shall later more fully see the demonstration of its truth. That, and the testimony of the name "Kjalarnes," and the renewal of Thorwald's keel go together. Let us consider the situation anew.

Now, Bjarni was three days and nights, with a "fine breeze from the southwest," in making the 3° 10′ of latitude and 12° of longitude between Cape Sable and Cape Race, — six hundred and ninety statute miles; and he was two days and two nights, with a southerly (?) wind, making the 5° of longitude with the 1° 20′ of latitude between Cape Cod and Cape Sable, — two hundred and seventy-five miles. Taking the latter division of the voyage in reverse, Leif made it in two days, — that is, probably two days and nights; as he came upon land in the early (?) morning (those who landed observed the dew). The times would then be practically identical.

Leif's Expedition and Landfall.

Leif, having heard Bjarni's story, buys, equips, and mans his ship. He touches the island Bjarni had coasted, notes the flat rocks along the shore (see photograph, page 31), calls it Helluland, and sails away for Bjarni's next salient, taking it in reverse. He finds the shore sandy, calls the land Markland, and sails away for the next point.

Here is Leif's record from the time of leaving Markland:[1] —

"Leif said, 'We shall give this land a name according to its kind, and call it Markland.' Then they hastened on board, and put to sea again, with the wind from the *northeast*, and were out for two days until they sighted land. They sailed to the country, and *came to an island that lay to the north of the mainland*."

One relator says, "where they disembarked to wait for good weather." Another relator says: "Walked ashore there, and looked about in fine weather. They noticed that dew was on the grass, and happening to touch it with their hands and put it into their mouths, thought they had never tasted anything so sweet."[2]

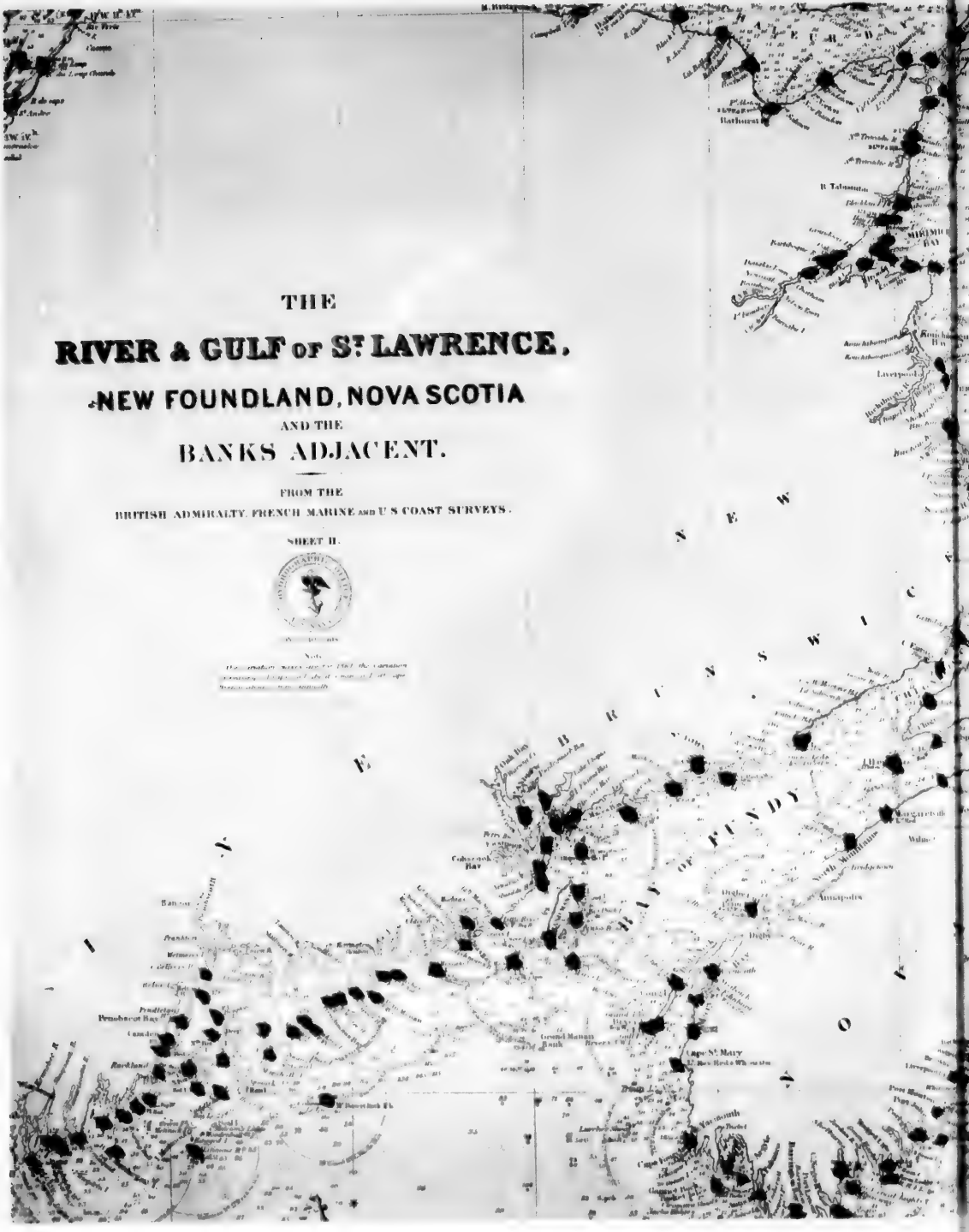
[1] See Saga of Erik Raude, Appendix.

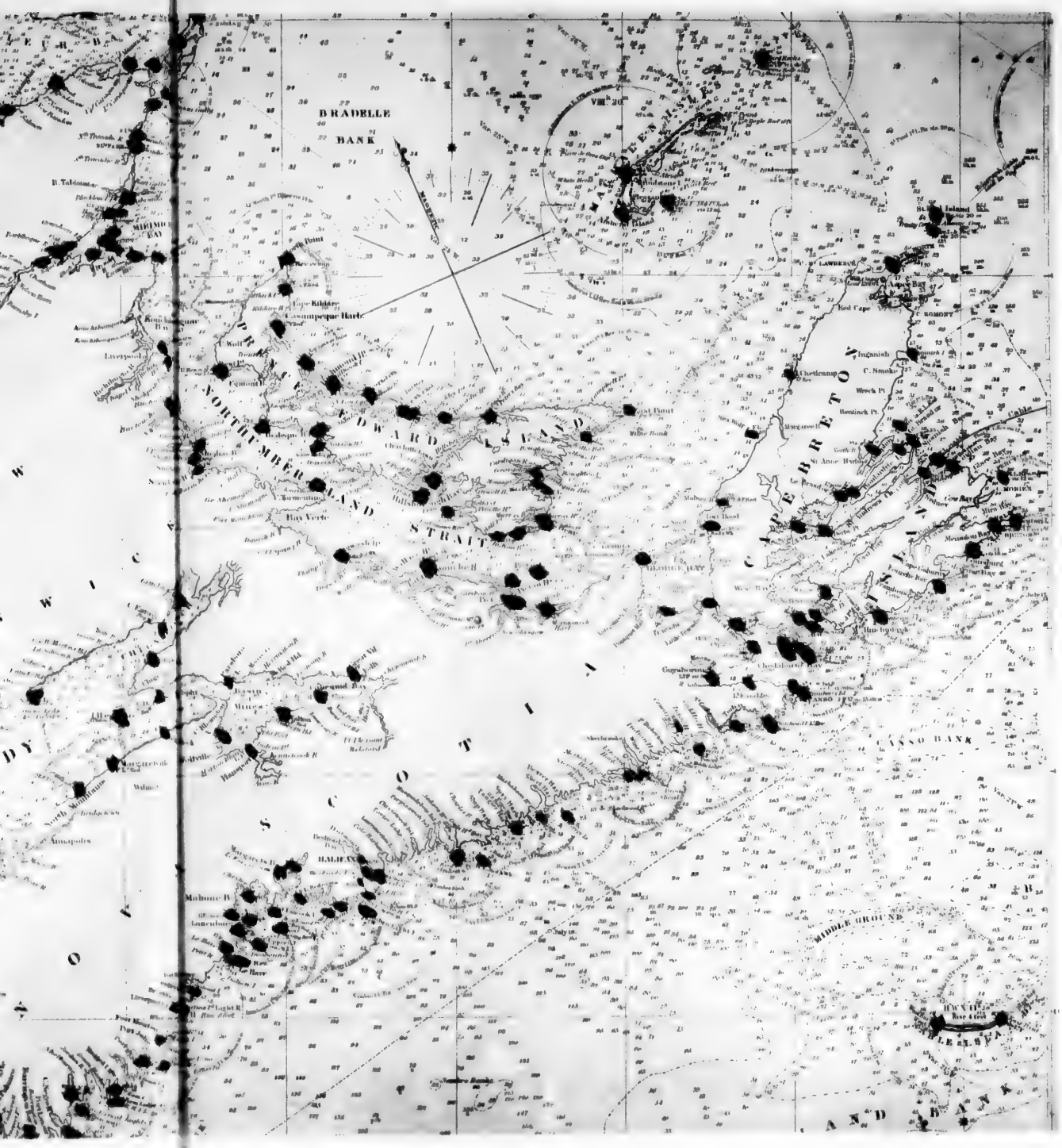
[2] W. W. Witherspoon (American Anthropologist, vol xi. p. 380), says: "Whilst travelling through the State of Nevada, . . . my attention was attracted to numbers of Indians, principally squaws and children, camped along the borders of Honey Lake. The shores of this lake were bordered by large beds of tules, or rushes, growing in the shallows. I was told that the Indians came to the lake every year to gather honey-dew; and never having heard of this before, I made a hurried investigation, and found the tules when freshly gathered to be sparsely covered with small, clear, bright points or drops of a sticky and very sweet liquid, resembling honey in both taste and consistency. The drops in some instances were a little larger than a pin's head, but as a rule were very minute. This, I was told, was the 'honey-dew;' and it was to gather this that the Indians were then gathering the tules. . . .

"I was informed by the white men living near Honey Lake that the lake derived its name from this honey-dew. Whether the dew is the result of perforations in the stalks produced by insects, or is a deposit made by some insect, I am unable to say."

Touching the last point the following observation will have weight. Driving in Lenox, Mass., late in September, 1889, I noticed the leaves on shagbark hickory-trees by the roadside to be apparently varnished on one side. On examination I found the substance sticky, and to be sweet to the taste. The quantity that had issued was so considerable as to have dripped and stained the fence rails and the ground. On some leaves there were little white crystalline scales, looking and tasting precisely like cane sugar. It was palpably an exudation from the leaf. The leaves of elms were also varnished; but the substance, though viscid, was bitter to the taste. The day was dull, and the season had been marked by unusual rainfall. The coachman and the domestics at my house said they had frequently observed the same phenomenon in Ireland.

I have noticed the growth of rushes in low areas about Cape Cod, and much of a long, slender-leaved grass, deeply rooted in the sands; but having been accustomed to think that the sweetness of the dew observed by the Northmen was another word for refreshing purity, very natural to men who had for a long time been at sea, it had not occurred to me to look for indications of honey-dew


THE
RIVER & GULF OF ST LAWRENCE,
NEW FOUNDLAND, NOVA SCOTIA
AND THE
BANKS ADJACENT.
FROM THE
BRITISH ADMIRALTY, FRENCH MARINE AND U.S COAST SURVEYS.
SHEET II.
BAY OF FUNDY
NEW BRUNSWICK
NOVA SCOTIA
Bathurst
Liverpool
Annapolis
Digby
Cape St Mary
Magdalen Islands


BRADELLE BANK
PRINCE EDWARD ISLAND
NORTHUMBERLAND STRAIT
CAPE BRETON
NOVA SCOTIA
CISCO BANK
MIDDLE GROUND
HALIFAX
Malhone B.
Liverpool
Port Mouton
Lunenburg
Shelburne
Yarmouth
Annapolis
Digby
Pictou
Charlottetown
Summerside
Tignish
Shediac
Miramichi Bay
Richibucto
Buctouche
Cape Tormentine
Baie Verte
Tatamagouche
Wallace
Pugwash
Amherst
Parrsboro
Windsor
Truro
New Glasgow
Antigonish
Canso
Sydney
Louisburg
Arichat
Port Hood
Margaree
Inverness
Mabou
Whycocomagh
Baddeck
Bras d'Or
Sydney Mines
Glace Bay
Louisburg
Cape Breton
Gabarus Bay
Scatarie I.
Sable I.
Sable I. Bk.
Le Have Bk.
Western Bk.
Roseway Bk.
Browns Bk.
Banquereau
Sable I. Bks.
Le Have Bks.
Western Bks.
Roseway Bks.
Browns Bks.
Banquereau Bks.

Having landed and observed the sweetness of the dew, they again embarked.

"Then they went on board, and sailed through[1] a bay that lay between the island and a ness that jutted out northeastward[2] from the mainland, and steered . . . westward,[3] past the ness."

The two great facts relating to the Landfall are — (1) *descending from the northeast upon an island lying to the north of the mainland;* and (2) *its having on the west a broad bay opening out to the north.*

Leif, in plain sailing to the *southwest* from Newfoundland, could *not* have fallen on an island on the *north* shore of Nova Scotia, even if he might have been west of the island of Newfoundland.

Why? *Because Prince Edward Island*, or *Cape Breton*, or the *Magdalen Islands, would have intercepted him.*

But in sailing from Cape Race, reversing Bjarni's route, might not Leif have fallen on an island on the *south* side of Nova Scotia? Yes. But how will he, on leaving the island, as the Saga requires, sail *through* or *across* a bay or sound *opening outward to the north?* Look at the Admiralty map; look at the chart of Stephanius; look at the sentence above from the Saga!

All the bays on the *south shore* of Nova Scotia which Leif could have reached by sailing from Cape Race at the northeast, *open* to the ocean, *not* to the *north*, but to the *south*.

On reflection it will be clear to the reader, with the maps before him, that this is *conclusive* as to the latitude of the Landfall. It could not have been on the coast of Maine, as there are *no sand-beaches* from Portland to Frenchman's Bay; and a sandy shore is essential, though not enough of itself to determine Vineland.

Had it depended alone on a belt of sandy shore or lowland, wooded, and the absence of snow-covered mountains (as these qualities are common to the peninsulas of Cape Cod and of Nova Scotia), the Landfall might

[1] There are other versions; as, "across a bay," and "into a sound."
[2] Another version is "*north*." [3] *Sailed* westward.

have been on Nova Scotia, though Markland with sandy shores could not have been Newfoundland. Why? *Newfoundland has no sand-beaches.* But coming from the northeast upon the Landfall at the *north* of the mainland, and then sailing westward through a bay *opening out* to the *north* and past a ness jutting out from the mainland to the northeast, determines the question adversely, so far as Nova Scotia is concerned.

There is a feature of the coast which may be mentioned as most interesting and corroborative. It is that the southernmost part of Vineland on Stephanius's map, in presenting a bay opening to the ocean on the north, as already observed, and having a long, narrow promontory going northward, the continuation of the mainland on the east, *corresponds to Cape Cod Bay*, already referred to, and suggests the name which the Dutch gave to Cape Cod, — Witte Hoek (*White Hook*).

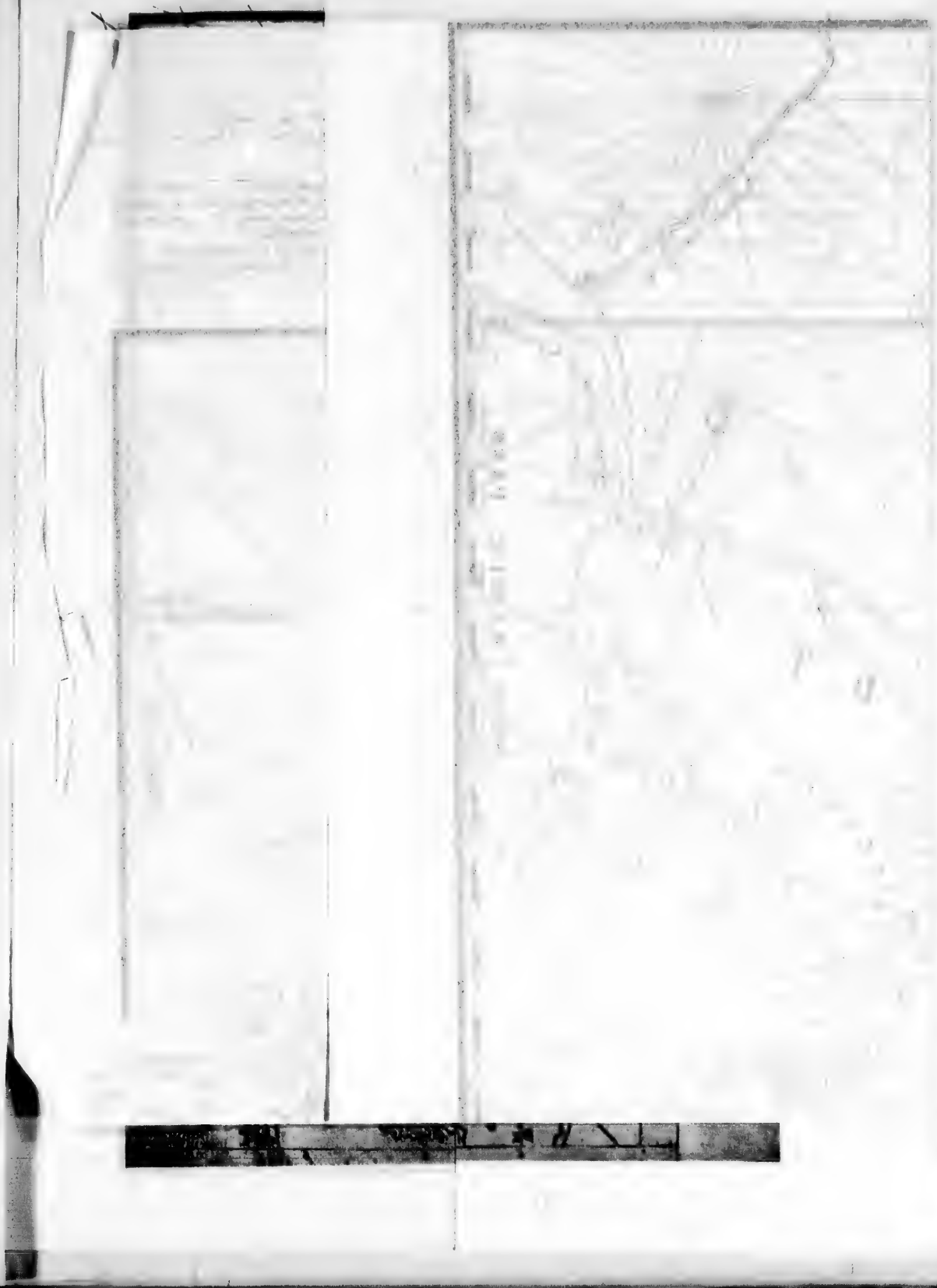
The Island on which the Landfall Occurred.

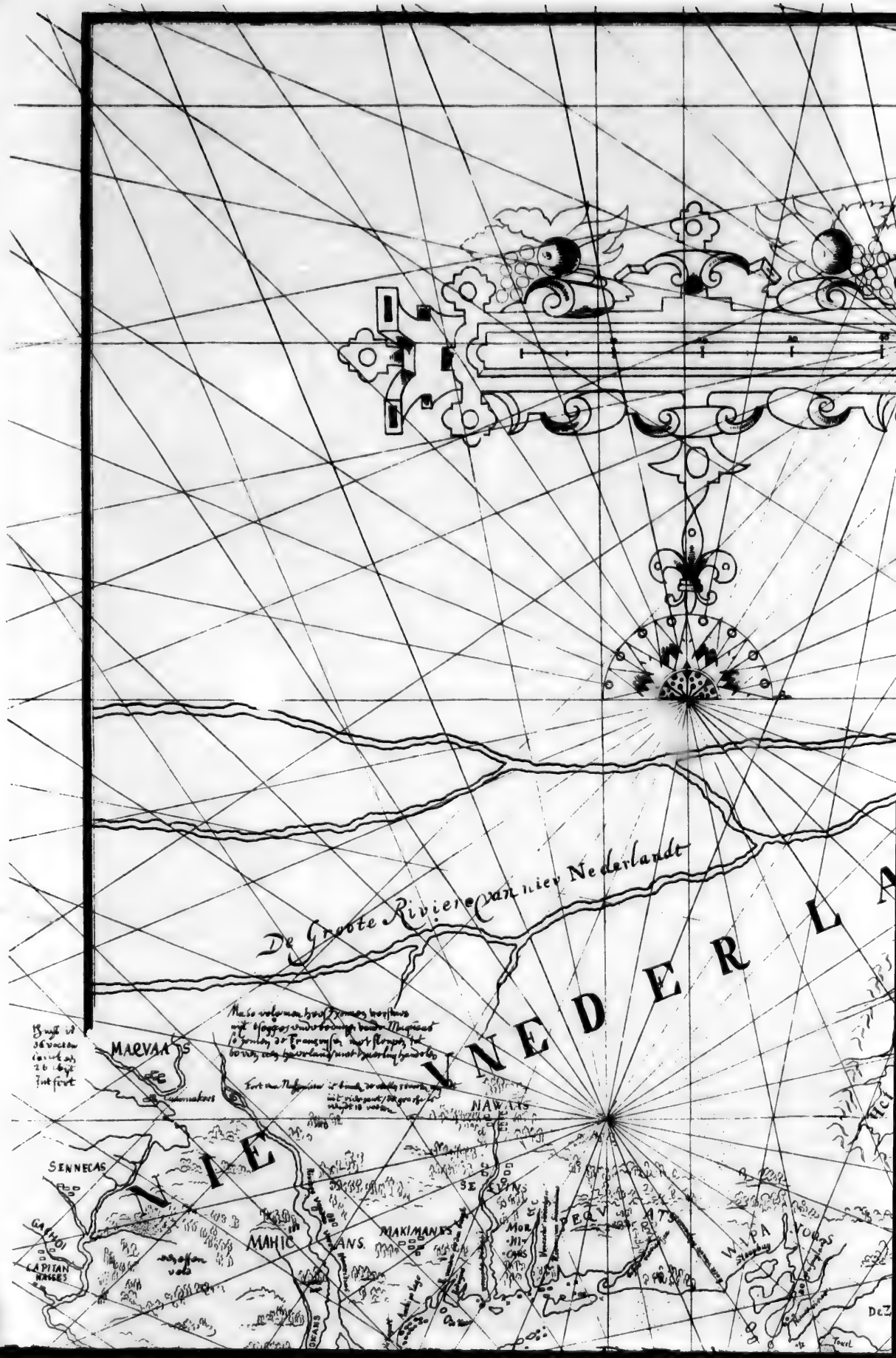
But it must be admitted that the island which was Leif's Landfall is not on our modern maps, nor on the map of Stephanius. Have we then made a mistake, after all? No; the island was there. It existed down to 1602. Gosnold saw it. It was there to Allefonsce in 1543, to Ruysch in 1507, to Cosa in 1500, probably to the crew of John Cabot in 1497, and we may add to Leif in 1000.

It was the Kjölrnes (Kjalarnes) of Thorwald and Thorfinn; the Coaranes of Merriam; the Carenas of Lok; the Cape Arenes of Thevet; the Cape de Arenas of Mercator; the C. de arena of Vallard; the C. de Sablons of the Dauphin map; the Cap Blanc of Champlain (1605); the Insel Baccalaurus of Ruysch (1507), and its equivalent, the Cape Cod of Gosnold (1602), — the Cape Cod of to-day.

North End of Cape Cod an Island.

How far southward might the island of Leif's Landfall extend? According to Cosa, Ruysch, Allefonsce, and Gosnold, it was near the summit of the Cape. But a strait may have been observed farther south. I submit —




De Groote Riviere van nieu Nederlandt
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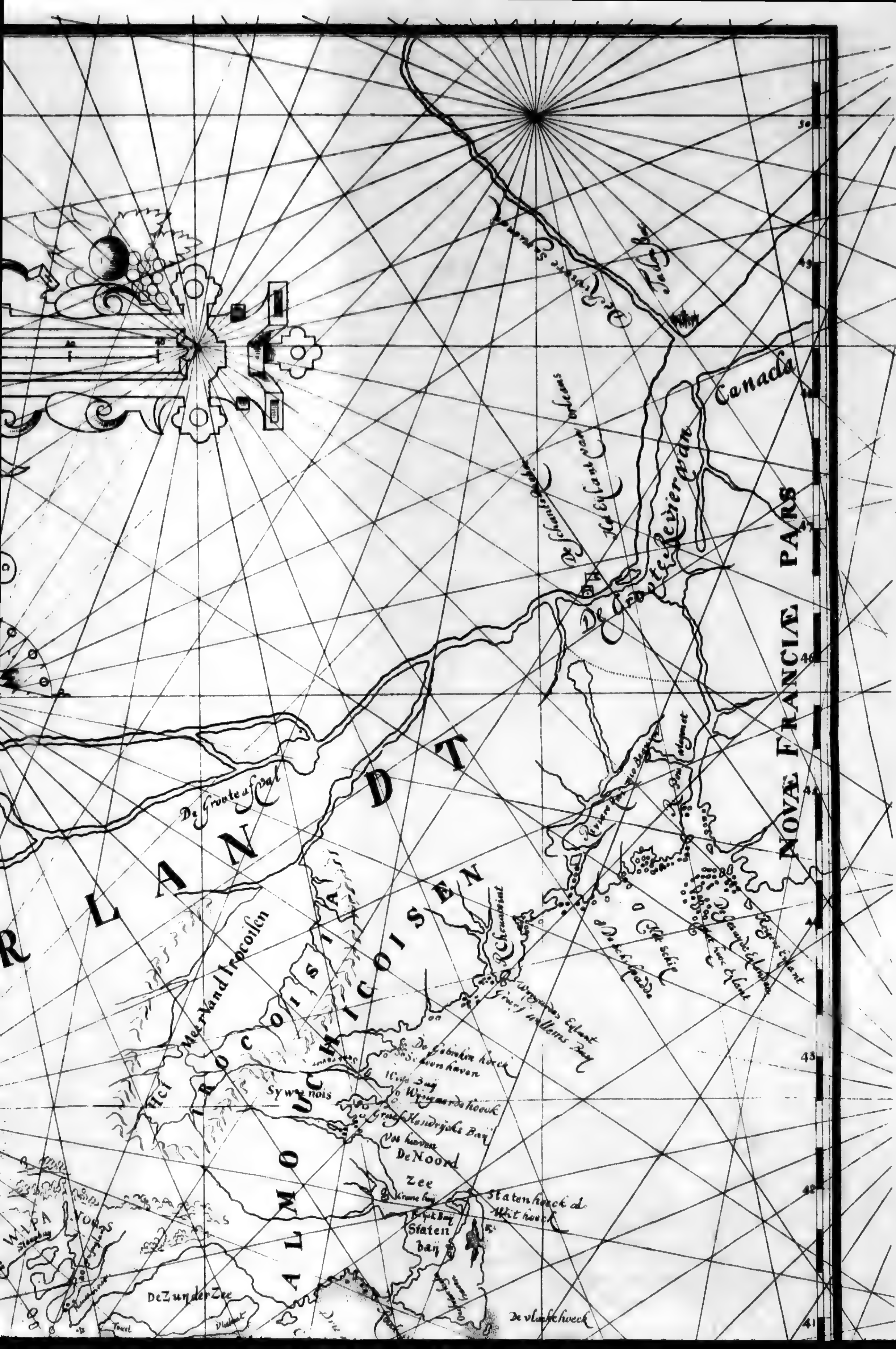

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De Groote Revier van
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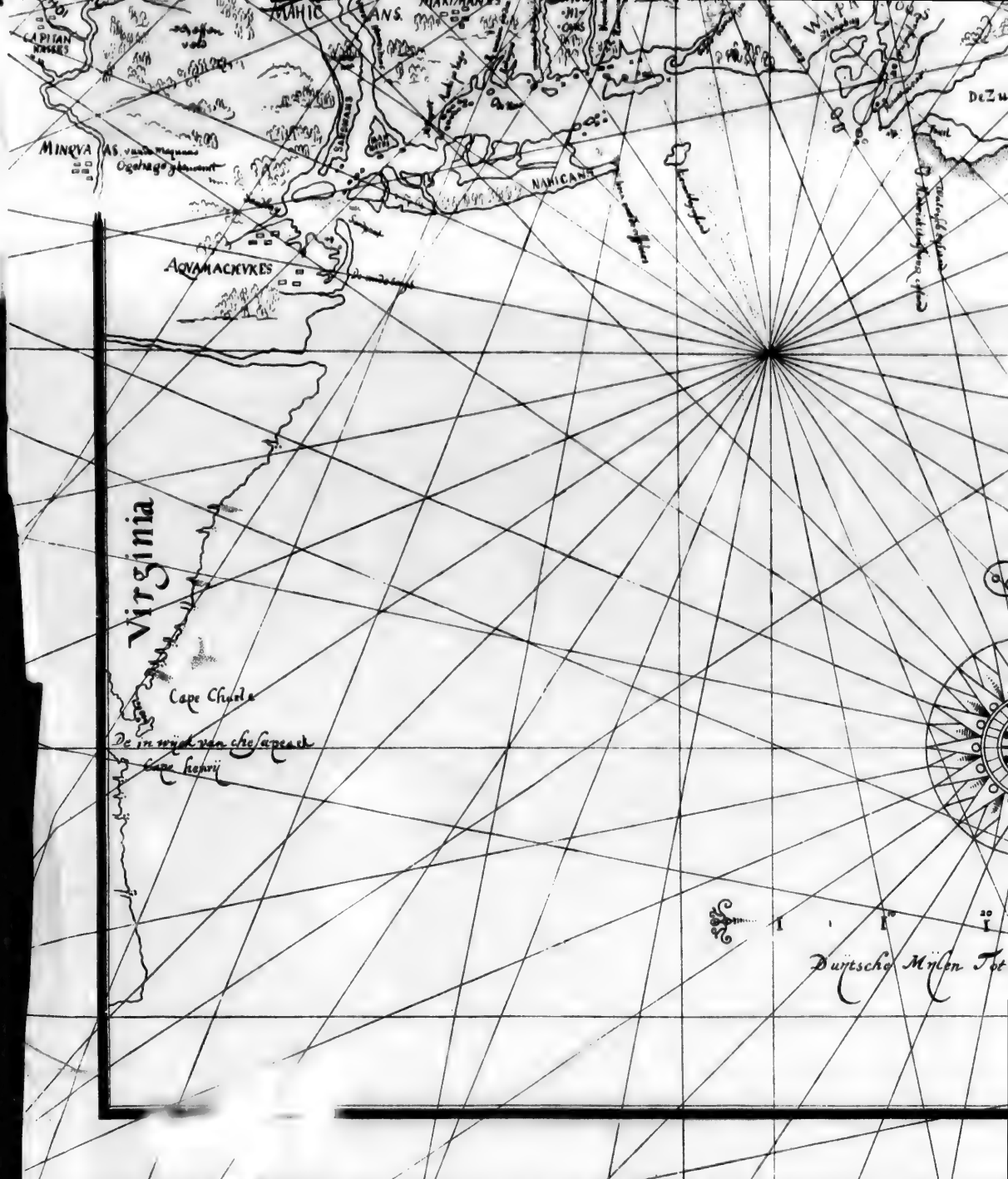


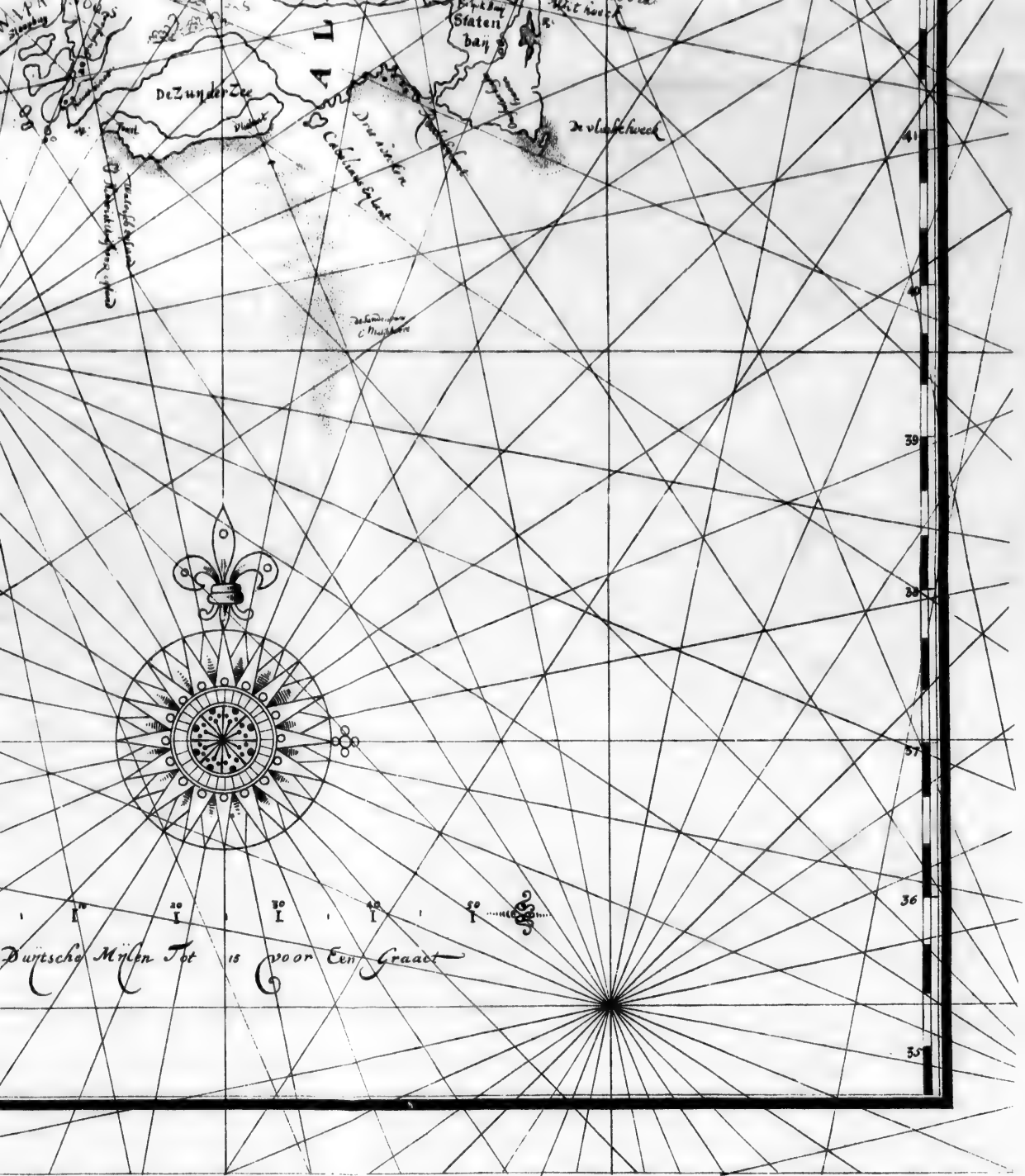
The Original Ca[rte] Figurative, of which the above is an accurate Fac Simile was found on the 26th June 1841, in the L[ibrary] of the States General, in the Royal Archives at The Hague.

It was annexed the Memorial presented to The States-General, on the 18th August, 1616, b[y] "Bewindhebbers van Nieuw-Nederlandt praying for a Special Octroy according to the Placaat of 27 March 1614, Memorial, as shewing the extent of th[e] discoveries made by Schipper Cornelis Hendricxx. of Munnikendam, in a small burden, named "The Onrust," which Memorialists had caused to be built in New Netherland.

The Hague, 27th July, 1841. J. Romeyn N. P.

Copée d'après l'Original par P. H. Loffelt.
La Haye Juillet 1841

LITH. OF SARONY & Co. NEW YORK.



e 26th June 1841, in the Loket Kas

on the 18th August, 1616, by the
Placaat of 27 March 1614, and is referred to in the
Munnikendam, in a small yacht of 8 lasts
and.

41. J. Romeyn Broadhead

Agent of the State of New York &c

De ondergetekende verklaard, dat hij deze kaart met de voor-
gronkelijke bronstonde in de Archiven van het Koningrijk der Nederlanden te
's Gravenhage, vergeleken heeft en dat dezelve is een in alle opzigten naauw-
keurig facsimile van de voorgron kelijke.

De Archivaris van het Ryk,

's Gravenhage den 26 Augustus 1841.

J. de Jonge

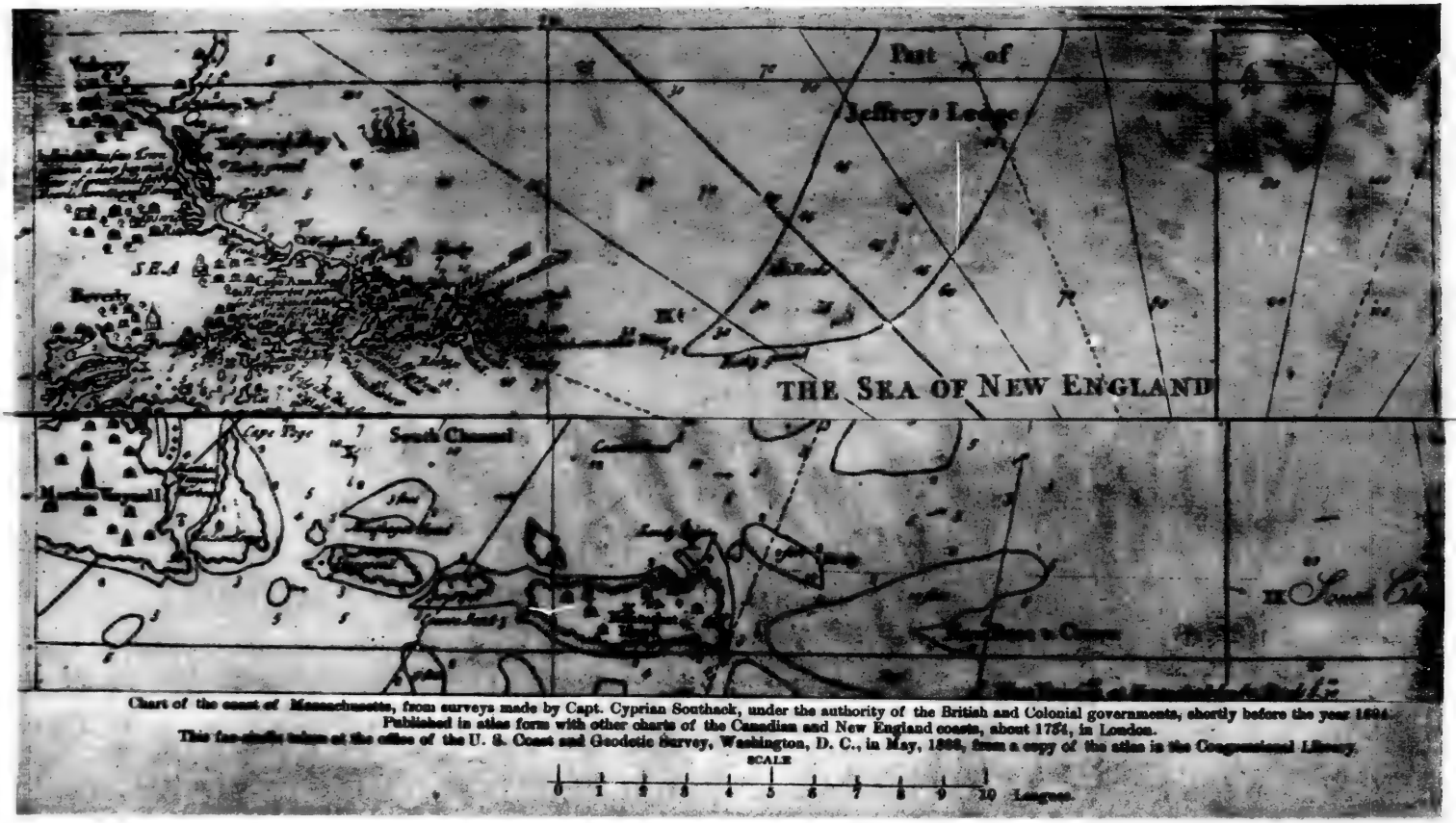
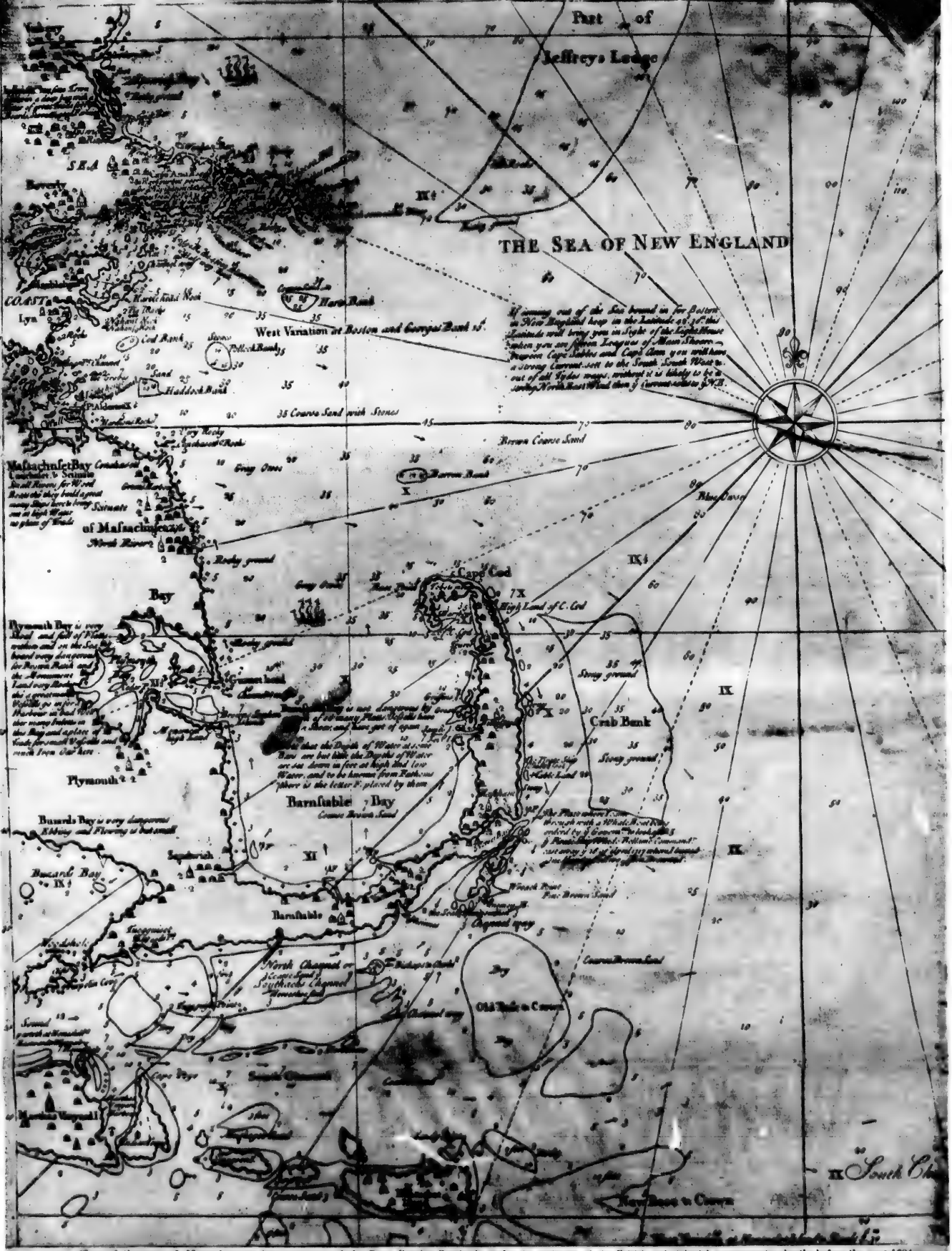
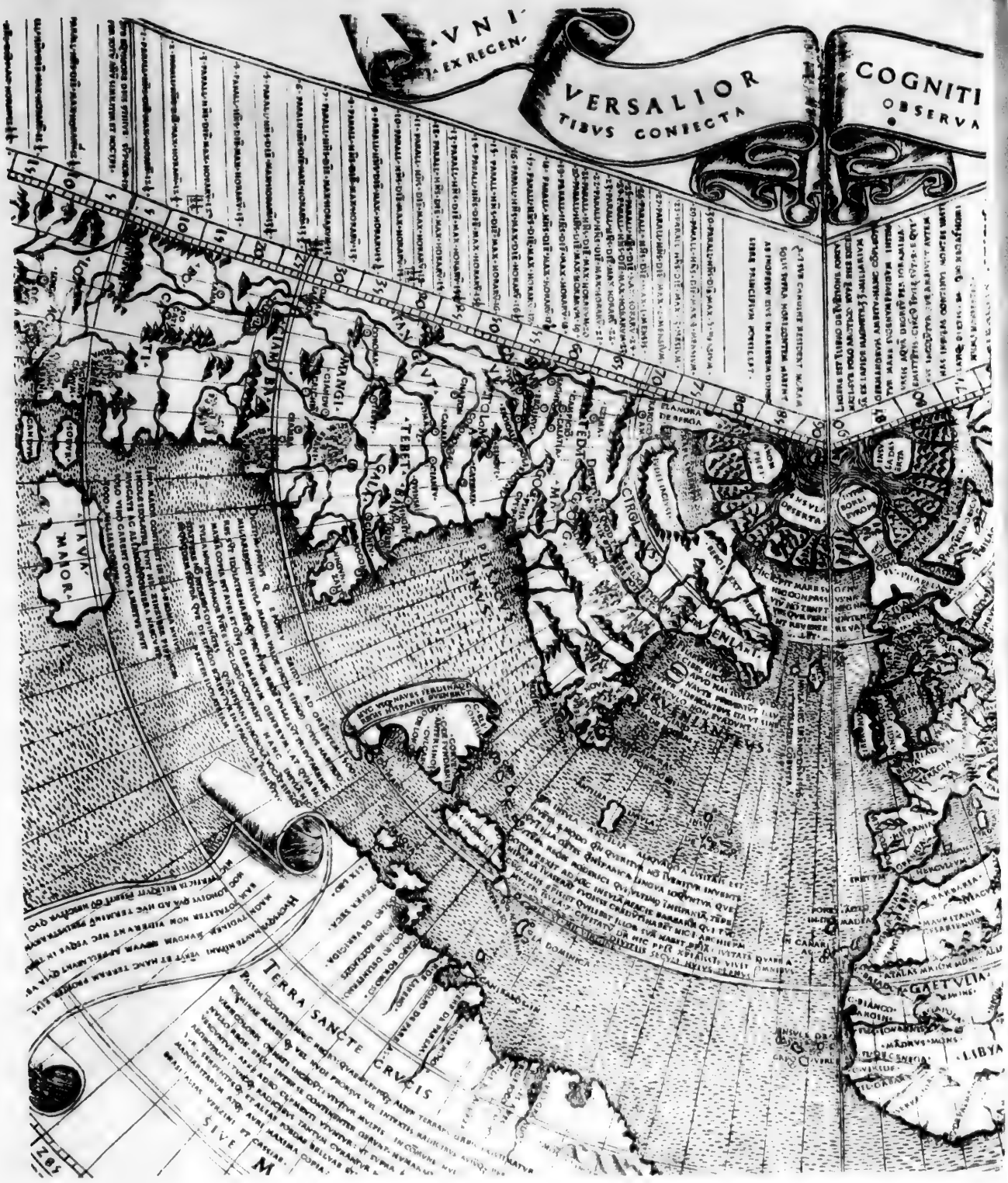


Chart of the coast of Massachusetts, from surveys made by Capt. Cyprian Southack, under the authority of the British and Colonial governments, shortly before the year 1694.
Published in atlas form with other charts of the Canadian and New England coasts, about 1784, in London.
This fac-simile taken at the office of the U. S. Coast and Geodetic Survey, Washington, D. C., in May, 1868, from a copy of the atlas in the Congressional Library.


Part of
Jeffrey's Ledge
THE SEA OF NEW ENGLAND
SEA
COAST
Lyn
Boston
Hare Bank
West Variation at Boston and Georges Bank 16°.
Cod Bank
Pollock Bank
Haddock Bank
Stones
Rocky ground
Very Rocky
Sunken Rock
Gray Ooze
Brown Coarse Sand
Barren Bank
Massachusetts Bay
Scituate
of Massachusetts
North River
Cape Cod
High Land of C. Cod
Bay
Plymouth Bay is very
Plymouth
Crab Bank
Stony ground
Barnstable Bay
Coarse Brown Sand
Buzzards Bay is very dangerous
Buzzards Bay
Sandwich
Barnstable
Wreck Point
Fine Brown Sand
Channel spit
North Channel or
Coarse Sand
Southwicks Channel
Old Rock a Comes
Cape Poge
Nantucket Shoal
New Bank a Comes
South Ch
Chart of the coast of Massachusetts, from surveys made by Capt. Cyprian Southack, under the authority of the British and Colonial governments, shortly before the year 1694.
Published in atlas form with other charts of the Canadian and New England coasts, about 1784, in London.
This fac-simile taken at the office of the U. S. Coast and Geodetic Survey, Washington, D. C., in May, 1888, from a copy of the atlas in the Congressional Library.
SCALE
0 1 2 3 4 5 6 7 8 9 10 Leagues.

Mar oceano
Cabo de buena esperança
Cabo de buena esperança
Cabo de buena esperança


VNI
EX REGEN
VERSALIOR
TIBVS CONIECTA
COGNITI
OBSERVA
TERRA SANCTE
CRVCIS
SIVE M

1. Southack's map, from surveys begun in 1694, and published in 1734. It presents a passage across the cape, or peninsula, which Southack traversed in a whaleboat in 1717. It is now crossed by two bridges. It had its eastern terminus in Nauset Harbor, and its western outlet is now Boat Meadow River. This passage, answering to popular belief on the Cape, was closed in about 1740. It appears to me, passing along the highway, to be filled up with blown sand, through which still creeps a slender rivulet.

2. We have the map of the Dutch explorer, from surveys of Hendricxsen, in 1614. It shows open way through Bass River on the south side to Bass Hole on the north, now occupied with the river, swamps, ponds, and an area of sand-ridges thrown up by wind and water. I have visited the region. Through this pass the Puritan Colony of 1638, going to Quinnipiac from Boston, afterward settling at Guilford, according to tradition, probably passed. It is one of the routes which it has been proposed to open for a ship-canal across the peninsula of Cape Cod. This ancient channel, cutting off the eastern part of the peninsula, made, as seems probable, the great triangular Island of Louisa of Verrazano, — about the size, as he estimated, of the Island of Rhodes.[1] The map of Hendricxsen bears rather on the merging of the numerous original more or less detached moraines into the present continuous peninsula.

3. We have the map of Ruysch, bearing date of 1507, produced from records by Portuguese discoverers of the earlier years of the sixteenth century. Although a little distorted, there can be no question that In. Baccalaurus was the portion of the present Cape Cod within which the Pilgrims anchored in 1620, around which "the Race" sweeps, and on which stands Provincetown to-day. A glance at the large and detailed Coast Survey Map of Cape Cod shows the Islet Baccalaurus united by a long neck, quite slender toward the south, connecting with the main peninsula near the Highland Light. It shows, too clearly to leave a doubt, that there was a time when the long, narrow strip of drift sand constituted a part of the body of the ancient moraines at either end.

4. A few years nearer to the time of Leif we have Cosa's map of 1500. As Cosa was not on the New England shore, the portion of the map north of the West Indies must have been supplied to him. As John Cabot is the only earlier navigator whose sketch of the region of Cape Ann and Cape Cod has come down to us, it is fair

[1] I quote the following from Brevoort's version of Verrazano, page 43: "Weighing anchor [in Boston Harbor], we sailed eastward, as the land turned that way, running eighty leagues [Ramusio says fifty]. We saw always in sight of it an island of triangular form, distant ten leagues from the continent, in size like the Island of Rhodes, full of hills, covered with trees, and thickly inhabited, [judging] from the series of fires which we saw them making all along the shore. We baptized it with the name of your illustrious mother [Louisa]." Verrazano appears, in determining the land at the eastward as an island, to have passed through the channel of Bass River from Cape Cod Bay to Vineyard Sound. This ancient strait is now largely filled in the central portions with blown sand. It has been repeatedly proposed to reopen the passage for ship navigation.

to infer that one of Cabot's crew shipped with Cosa and gave him the outline of this portion of his map. It is, naturally, out of proportion, but shows a larger and lesser island at the summit of the Cape. The narrow straits, in keeping with the idea that the whole region was made up of islands, were like the rest of Cosa's great map, and doubtless his own work. The Charles (the Rio Grande) and the rocks and islands at its mouth are there as they are on Ruysch's, and as described by Allefonsce and Thevet, and as they appear on the Coast Survey Chart.

The portion of the map which I ascribe to the sailor, reached from Cavo de Ynglaterra — Cape Britain (Breton), Cape Ann — to Cape Cod, the salient beyond the most distant flag, — a memory of the act of sovereignty (planting a flag) of John Cabot. It bears the Venetian and British arms quartered on Humboldt's copy. See Cosa's map in Humboldt's "Examen Critique;" also Gomara and Stevens.

Near Cape Breton is Cavo St. Johan of Lok's map, the C. Sainct Jean of Thevet, the alternative St. Johan of Allefonsce, — the Bay of St. John of Capt. John Rut. The site of Boston Harbor, and the rocks and islands near its entrance, are indicated, as is also the salient below Cohasset, — the site of the fourth flag counting from the north, — and next the Gurnet, or possibly the salient of Manomet, on which is set up the fifth flag. Against the coast between Cape Britain (Breton) and Cape Cod is the recognition of the discovery of the bay,[1] in the inscription "Mar descubierta por ingleses." The fifth flag is followed by the *sacque* of Cape Cod Bay and the islands at the northern end. The larger may represent the part of the eminence behind Provincetown, and the smaller the bulbous expansion at the end of the low neck which runs out from Race Point. See Cap de la Franciscane, on Allefonsce's map, referred to in his text as C. de Norombergue.

If it is obvious from the detailed map of the Coast Survey that Provincetown was once an island, it is equally obvious that Pamet River was once a passage through; and that this was true of Boat Meadow Creek and Bass River.

Thus we see that the present north end of Cape Cod may have been (in at least four ways) part of an island, five hundred years after the Saga of Erik the Red required that it should be an island.

The Summit of Cape Cod an Island.

Allefonsce (1543) gives the island as the easternmost projection of Terra de la Franciscane, — the Nova Francia (Gallia) of Verrazano.

Attentive study of the charts from Cosa, Ruysch, and Southack, side by side with the detailed Coast Survey map of Cape Cod, enables one to see that the navigators who furnished the originals may have found

[1] John Cabot in 1497. See inscription on Lok's map.

a channel above the Highland Light, and another at Pamet River; or, as we have seen, a channel may have been at Boat Meadow River, where Southack went through in the whaleboat in about 1717; or at Bass River, according to the tradition that one of the English ships in 1639 with the colony for New Haven sailed across Cape Cod; or as making to Verrazano the Island of Louisa, 1524.

How was all this Possible?

To the geological student it is obvious, as already intimated, that the whole peninsula was originally a cluster of terminal moraines, which from an early period, under the influence of currents and tides and winds, have been coalescing, — the abrasion carrying the sand and fine gravel away from the parent mound in a talus along the edges of the stream.

It will serve to make the matter more clear, if we dwell a moment on the geological history of Cape Cod.

The region of the forty-first, forty-second, and forty-third degrees of latitude was swept by an endless succession of glaciers, each succeeding the other, as a general thing, leaving its terminal moraines a little less advanced, — giving us the ridges so incomparably displayed along the valley of the Charles above Waltham, through more or less of the town of Plymouth, and throughout the peninsula of Cape Cod, Martha's Vineyard, Nantucket, and Long Island, New York. One sees evidence of them, possibly, in the fishing-banks of to-day. To see how recently some of these changes have been made, compare the map of Captain Southack with the Coast Survey charts, — areas that were dry at low tide two hundred years ago are now at all tides under water; or compare them with the maps of Champlain, with the salient of the shallow terminating in Baturier. Currents have cut down mounds and dispersed them, or have filled up areas of slack water with drifting sand. The closing up of the mouths of harbors, and the projection of long narrow

beaches are familiar phenomena. Look at the beach that has run out between the current of Eel River, having its mouth originally near Chilton Downs, the tide sweeping up between Manomet and Brown's so-called Sunken Island. It is as wide at Cedar Point against the Cowyard, three miles away, as it is where it springs from the mainland. Or, look at the beach that unites Saquish Head with the Gurnet, or that leads northwest from the latter to Brant Point.

The translation of sand by water and wind is a familiar phenomenon on the south shore of Long Island, New York. Napeague Beach, near the east end, is a strip, several miles wide, of sand-dunes, now uniting Montauk with the portions of Long Island farther west. The beach was at one time an open strait. Indeed, the Indian name, Napeague, — "*divide under water*," — describes its earlier condition. West of East Hampton, along the great South Bay, and farther along down to Rockaway and Coney Island, beaches are continually opening and closing, vanishing and re-forming.

It is not improbable that the beach between Provincetown and the Highland has been repeatedly opened and closed. Some twenty-five years ago heavy storms occasionally made a breach over some parts of the Neck; and the Government, alarmed at the possibility of the isolation of Provincetown, directed a line of piles to be driven where the danger seemed imminent. In spite of this, great alarm was felt during the winter of 1888–1889, lest a break should occur. A look at the detailed Coast Survey map will show, near the Highland Light Life-saving Station, how very narrow the beach is at the head of the swamp and meadow of the little bay which was open to Cape Cod Bay before the breakwater traversed by the railroad and highway was set up. (Coast Survey, Detailed Map.)

It is not impossible that this beach, open at the time of Leif, was continuous at the time of Thorwald and Thorfinn; again open at the time of Ruysch, and closed to Thevet; open again to Gosnold (1602), and closed to Prinne and Champlain and the Pilgrims. The year 1889 has

CAPE COD
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BARNSTABLE
BAY
BARNSTABLE
COUNTY
BREWSTER
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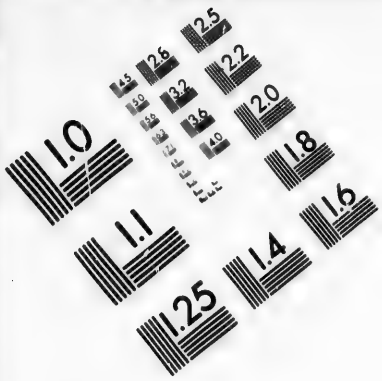
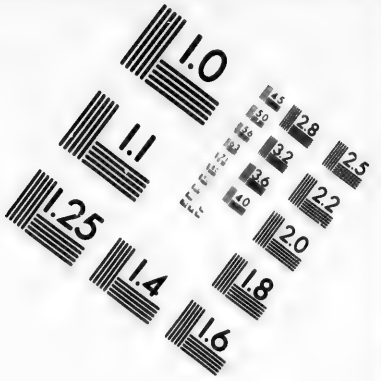
Miles
Yarmouth
70°20'
70°10'
70°00'





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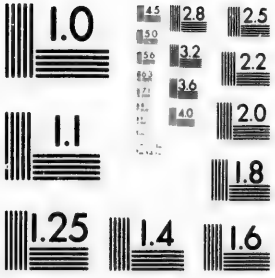

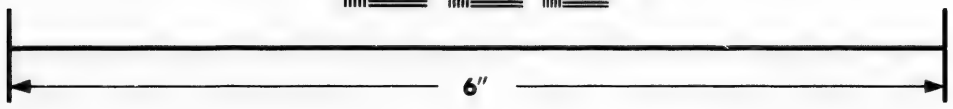

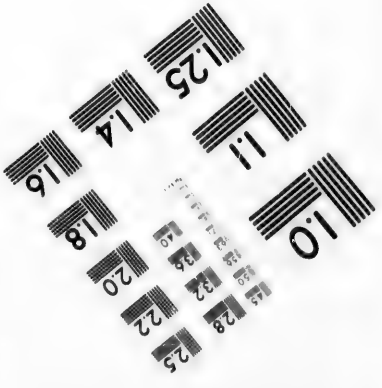

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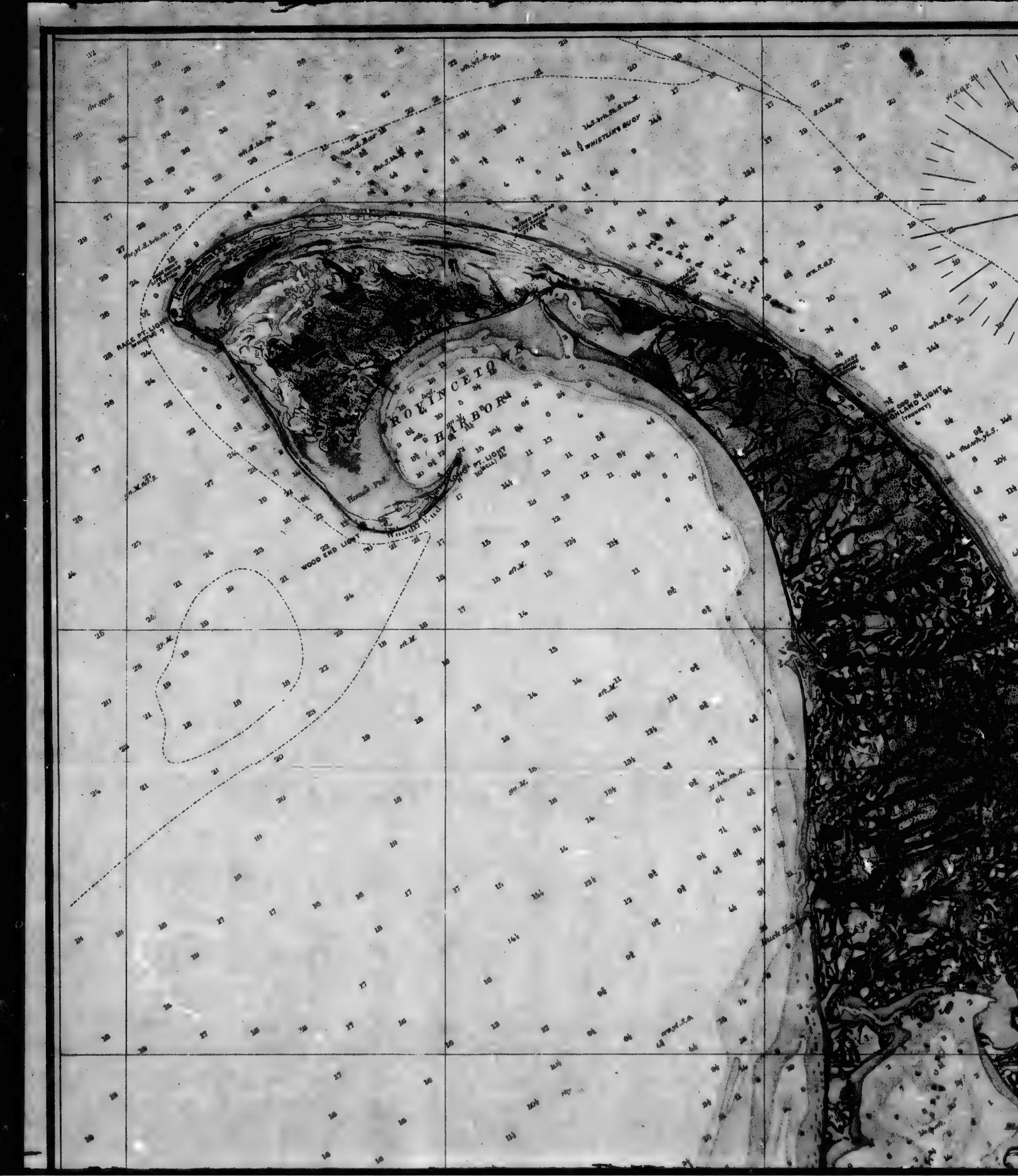
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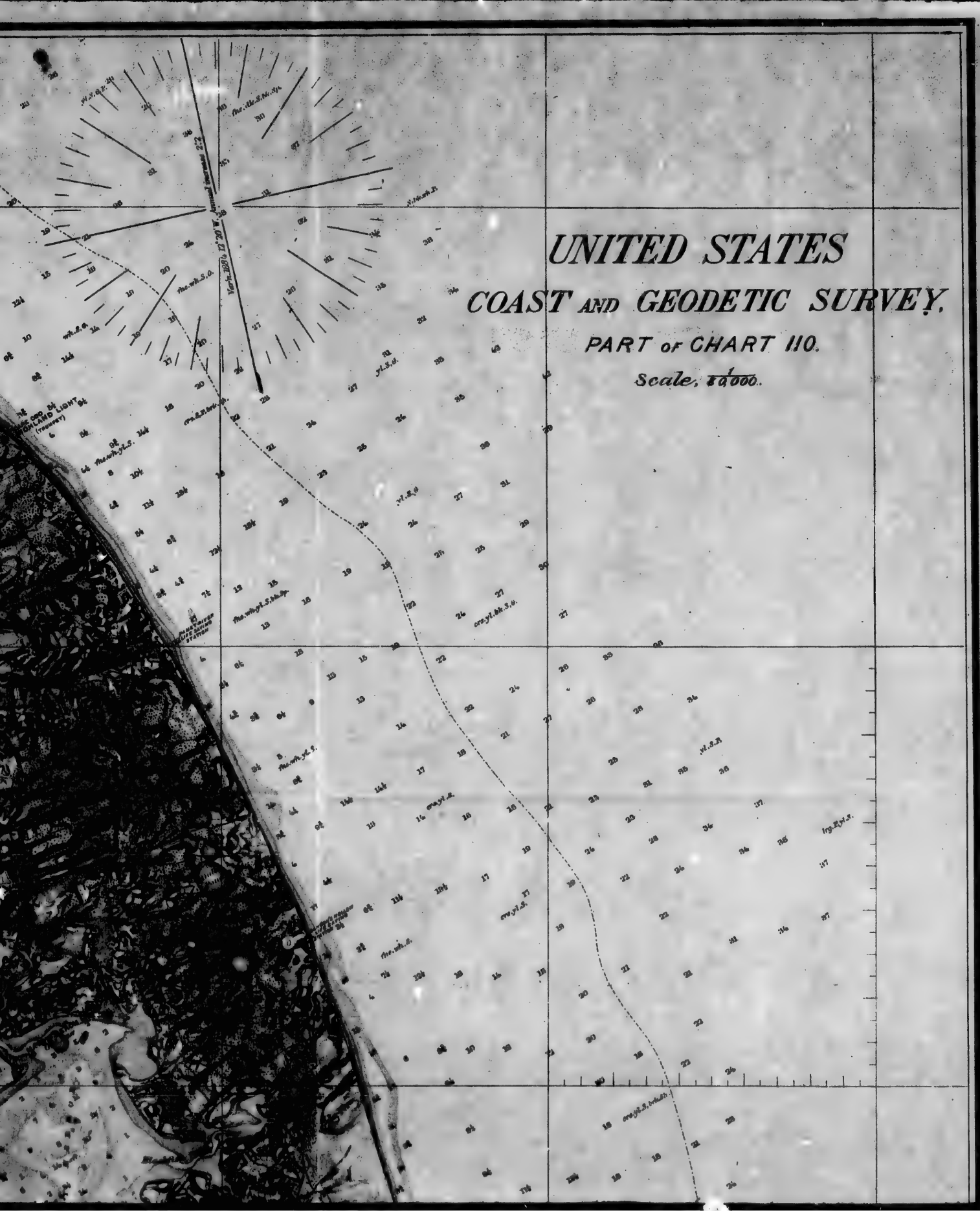
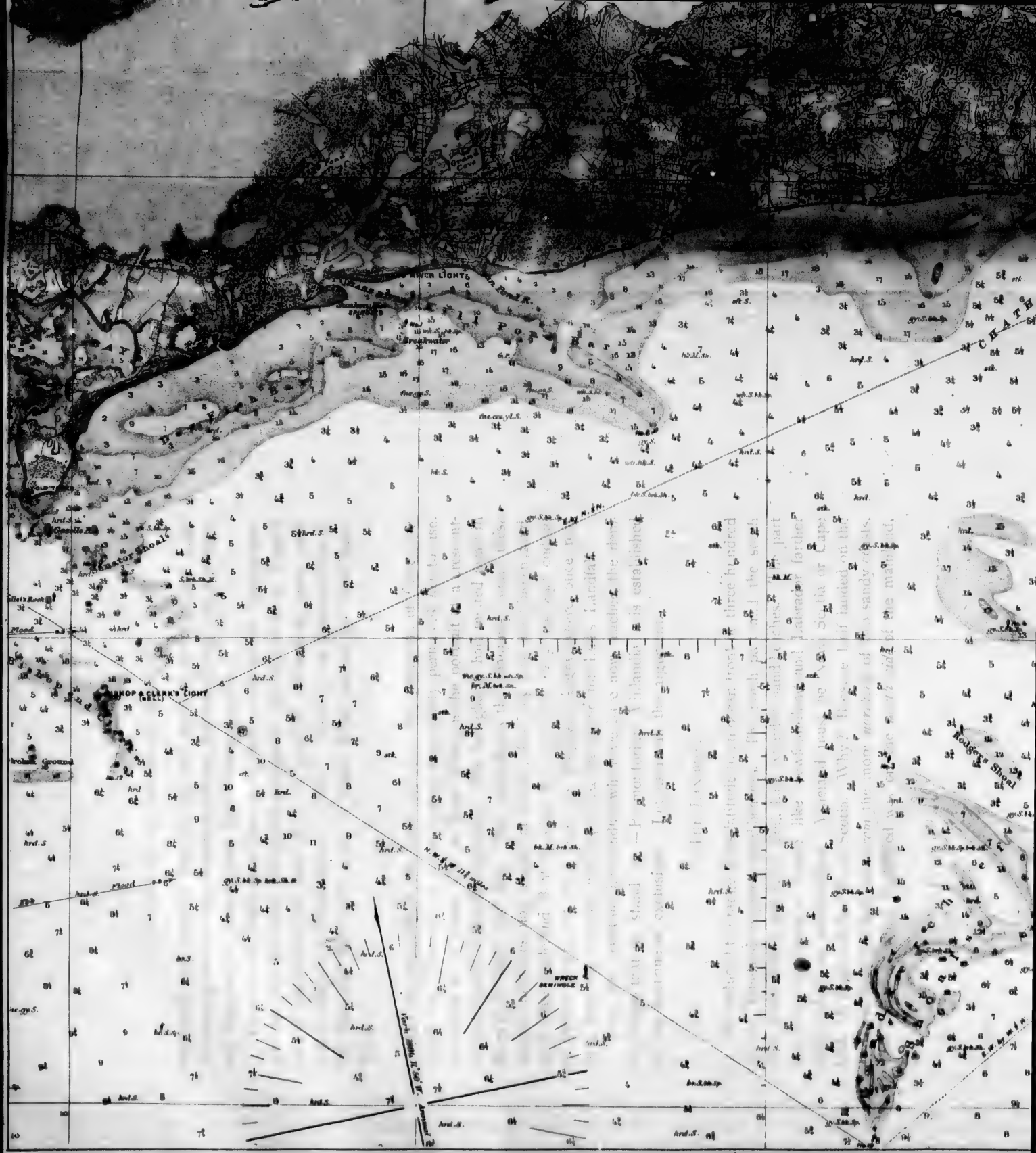
HARBOR
RACE PT. LIGHT
WOOD END LIGHT
HIGHLAND LIGHT
WHISTLING BUOY



UNITED STATES
COAST AND GEODETIC SURVEY.
PART of CHART 110.
Scale, 1/40000.

Billingsgate Shoal
Fishing Ground
West Bluff

Town Cove
Oyster Pond
Anch.



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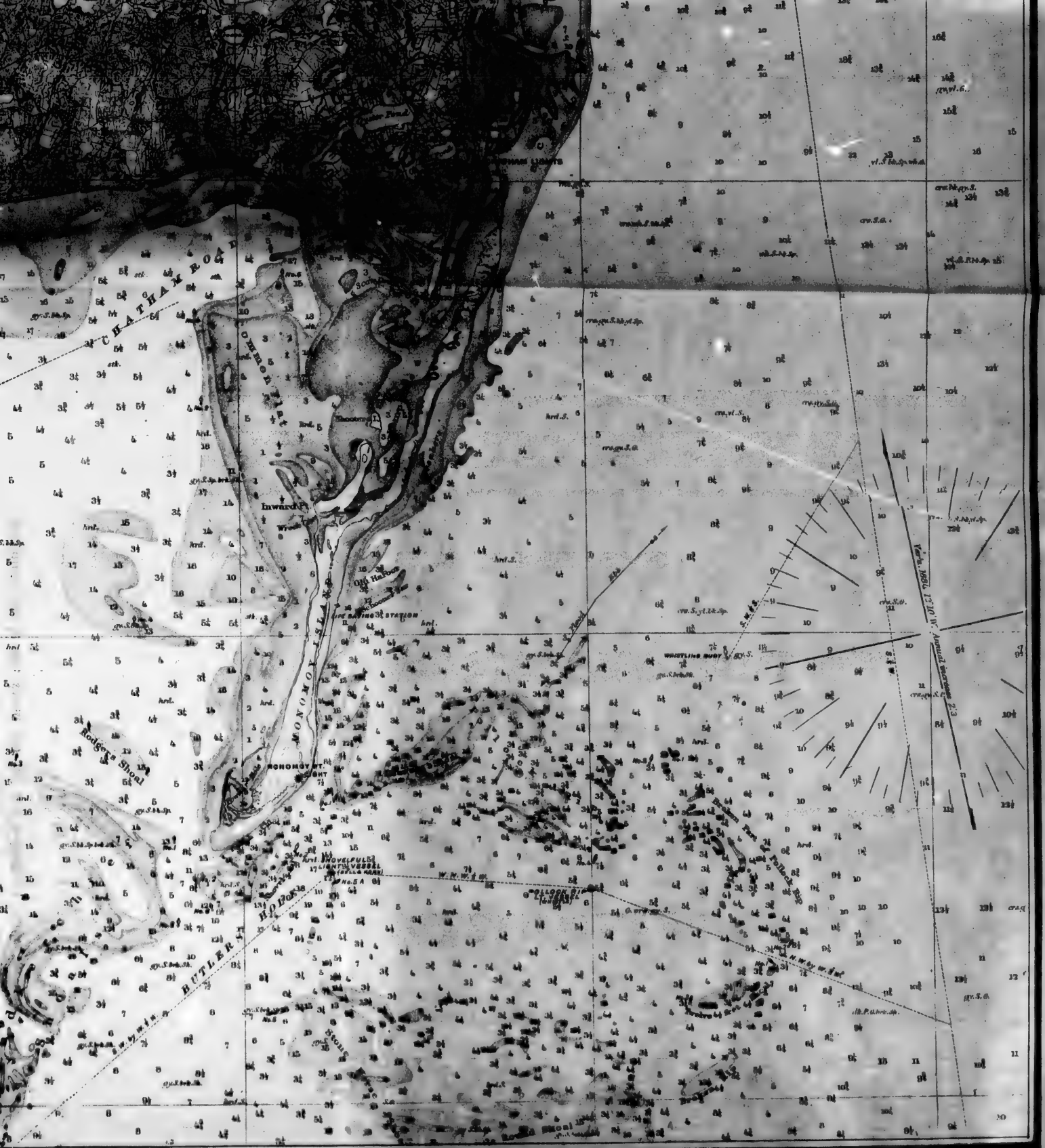

CHATHAM ROAD
MONOMOY ISLAND
Inward
Off Harbor
Life Saving Station
Monomoy Pt Light
Rodgers Shoal
Shovelful
Light Vessel
Fog Signal
Butler Hole
Shoal
Variation 1899, 13°30' W., Annual decrease 2.3

HOUGHTON MIFFLIN CO BOSTON

witnessed such wearing away of the neck north of the Highland Light Life-saving Station, that vessels outside can now see through the depression the light on the point beyond Provincetown harbor.

There can be nothing violent in assuming that the In. Baccalaurus, observed by the early Portuguese navigators and recorded by Ruysch, was in existence at the time of Leif's Landfall. It bore the same name that it bears now, *Baccalaurus*, — "Cod." There is no more question of this than that the region north of Pamet River was an island in earlier times.

Let us now look at the detailed map of the peninsula of Cape Cod, which the Office of the Coast Survey has kindly permitted me to use. It enables us to realize that we have before us the portrait of a crescent-shaped cluster of glacial moraines. The last glacier had melted away in its seat, in Cape Cod Bay. The map shows the channels among these ancient moraines now closed at points; filled up with wind-blown sand, as at Bass Hole and Boat Meadow River; or shut in at the east end, as at Pamet River, and lastly near the Highland Light, where once may have been the channel that separated the island for Leif's Landfall.

From the point of the Landfall which we have now reached, the demonstration that we stand on — Promontorium Vinlandiæ — is established by the doctrine of exclusions. Let us recall the argument.

The Landfall.

We reduced the range of its latitude to an ocean front of three hundred miles. Vineland required sand-beaches. The north part and the south part, Nova Scotia and Cape Cod, had extended sand-beaches. The part between — the State of Maine, like Newfoundland and Labrador farther north — had no sand-beaches. Vineland must be Nova Scotia or Cape Cod. It could not be Nova Scotia. Why? Because Leif landed on the *southern*, after two days' sail *from* the more *northern*, of two sandy coasts. The island on which he landed was on the *north side* of the mainland,

at the east of a bay opening out to the ocean on the ***north***. The conditions are impossible for Nova Scotia. (See the Admiralty map.)

Having determined the initial point of Vineland, the remainder of what is said in the Sagas may be studied as prediction, the verification of which must be sought in ancient and modern maps or other records, in the charts of the United States Coast Survey, in local histories, in the geology and geography of the region, and in field exploration.

The discussion about the length of the shortest day as indicating the latitude, takes on its proper place. So, too, Laing's stories of the grapes and of poor Tyrker, over which some conscious experts have waxed merry; the white ear of the unripe Indian corn being *wheat* (a grain that was not heard of here till Champlain brought it); the trouble about the profusion of eggs of water-fowl on Monomoy, even now described by sportsmen in the terms employed in Thorfinn's Saga; the pleasantry about Vineland's possible extension to Africa, and the early visit to Huitramanna-land (White Man's Land) to the south, — all which may have interest to patient students, but has little or no necessary connection with the Landfall of Leif.

The sixth point is that the Sagas *alone* yield a demonstration that Leif's Landfall was on Cape Cod.

The Vineland of Leif lay in the forty-second and forty-third degrees.

Massachusetts also lies in the forty-second and forty-third degrees of north latitude. Let us become familiar with its ocean front.[1]

[1] *Photographs of Maps of the New England Coast from A. D. 1000, as given on Stephanius's Map of 1570, down to the United States Coast Survey Map of 1866.*

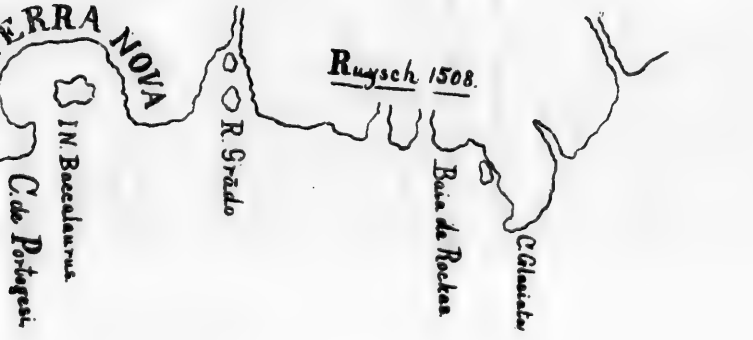
Stephanius (1570)	1000	John Dee	1582
John Cabot (chart in Lok's map of 1582)	1497	Molyneux Globe	1592
Cosa	1500	Wytfliet	1597
Ruysch	1507	Solis	1598
Verrazano (Maiollo's)	1524	Merriam	?
French Map (The Dauphin)	1546	Champlain	1612
Thevet	about 1556	Coast Survey	1886
Mercator	1569		

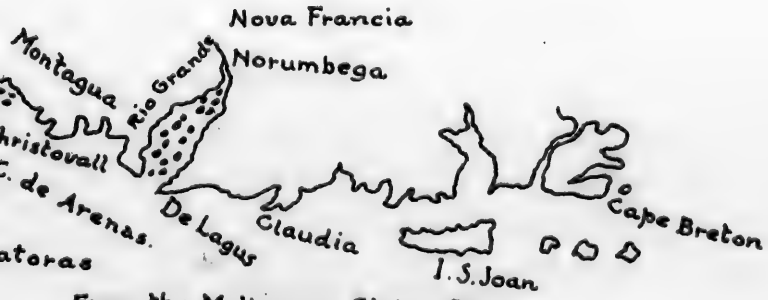
These outlines make sufficiently clear that the Rio Grande of Ruysch, the Charles of John Smith, and the Norumbega of Alleſonsce and Thevet were one and the same. There is on one side of

Claudia
Cabo de Baixa
Smith. 1614
Cape Ann
Winthrop 1634
Salem
Baker's Island
Cape Ann
Leif's Houses
Coast Survey 1886
Boston Harbor
Plymouth
Cape Ann
Leif's Landfall
Straumfiord

Mare de Verrazano 1524
Montes Johannes.
Carenas.
Mar descubiert
TERRA NOVA
IN. Baccalaurs.
C. de Portugesi.
Barbabs in.
Bigaetta In.
R. Grado
Montagua
Rio Grande
S. Christovall
C. de Arenas.
C. Hatoras
De Lago

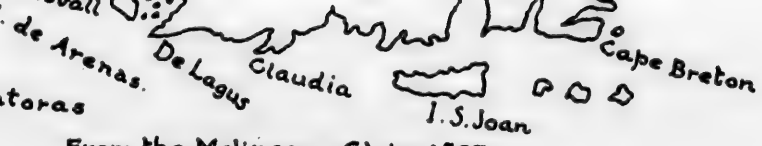
From the Mo



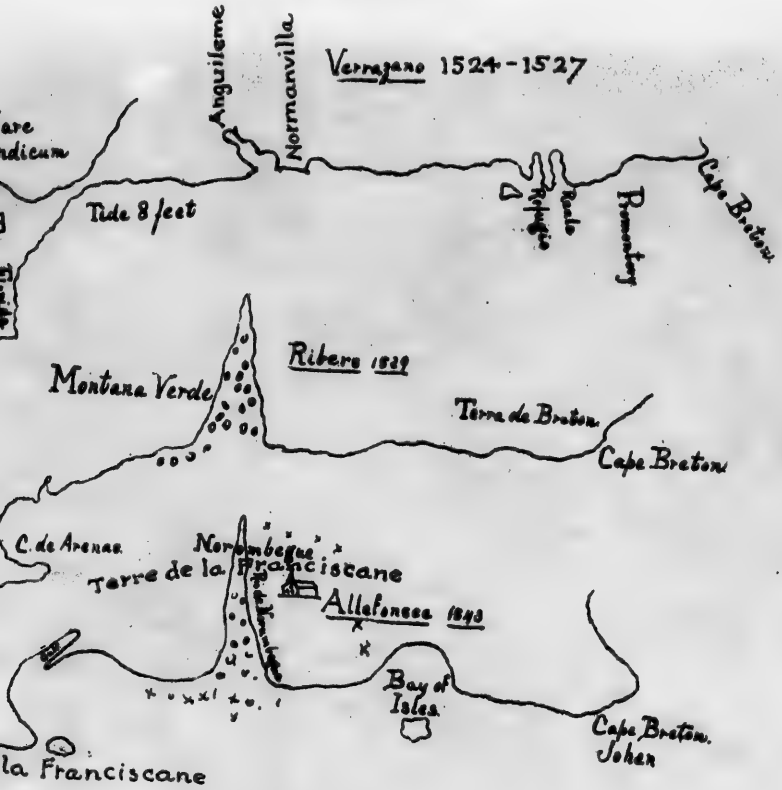


From the Molineaux Globe 1597.

C. de Arenas.
C. Hatoras
From the Mol
Anguileme
Mare Indicum
Tide 8 feet
Rio de Spirito Sto
Terra Florida
Tortugas
Montana Verde
Rio de Spirito SH.
C. de Arenas
Terre de la
Cap de la Franciscane
Arrecife Jamaica
Florida
Cabo de baxe
C. de Arenas
C. de las Islas



From the Molineaux Globe 1597.



C. de las Islas
Cabo de Baixa
Oyster
Seguards Bay
Cape Ines
Nantasket
Plymouth
Leif's Land
Straumfiord

Norumbega
Wytfliet 1597
C. de las Islas
Claudia
Cabo de Baixa
Smith. 1614
Cape Anne
Mistick
Winthrop 1634
Salem
Baker's Island
Cape Anne
Mantasket
Leif's Houses
Coast Survey 1886
Boston Harbor
Canal St Julian
Cape Anne
Leif's Landfall

Characteristics of the Region in the Latitude of the Forty-second and Forty-third Degrees.

We have before us the region in which we are to seek for Leif's houses. It embraces the shores of Massachusetts Bay. It is unique in its geography and geology. Its great salient, Cape Cod, is the most striking feature of the Atlantic coast between Florida and Newfoundland. The peninsula from Buzzard's Bay to the Race (the summit of the peninsula of Cape Cod) is a collection of terminal glacial moraines, gradually wearing away to constitute or to modify the banks and shoals that border the shores. At Portland, within a few leagues of the northern limit of Massachusetts, sand-beaches, that have extended almost without interruption from the coral reefs of Florida to that point, practically cease. Maine, Newfoundland, and Labrador, at the best, present uniformly sharp, rocky outlines to the sea. Nova Scotia presents a border of sand-beaches. The brow of the one-hundred-fathom line that like a shelf, as Agassiz says,[1] stretching from the outer banks of Newfoundland to the Straits of Florida,

the mouth of a river an Island Claudia and Cape Breton, and on the other Cape Cod, bearing sometimes the names that have preceded it; and much more that will reveal itself to a student of the collection of maps. The chief purpose in view was to show that there was a river having an archipelago at its mouth in the forty-third degree.

I have also introduced several other collections of sections of maps, to save space in illustration. They will aid the student, and do not need to be particularized here.

Photographs of Maps bearing on the presence of an ancient city called Norumbega on a river of the same name in the forty-third degree, showing that the name is the dialectic equivalent of Norway.

Peter Martyr	1520–1537	Pietro Plancie	1594
Mercator		De Bry	1596
Wytfliet	1597	Wytfliet	1597
Solis	1597	Solis	1598
Dauphin	1543–1546	Quadus	1600
Thevet	1556	Hondius, Mercator	1600
Mercator	1569	Champlain	1612
Michael Lok	1582	Ortelius	1570
John Dee	1580	Solis	1598
Judaeis	1593	Botero	1603

[1] Cruises of the "Blake." (See Hydrographic Chart of Atlantic Coast.)

comes up to within twenty miles of the Highland Light on Cape Cod. It seems to mark under water, in some degree, the area of glacial influence. Beyond this brow sets abruptly in the great deep of the Atlantic.

Our Arctic Current, sweeping southward between the shore and the western margin of the Gulf Stream, has influenced the history of the Western World scarcely less than the cod-fish, whose empire the Arctic Current shares,[1] from its great breadth against northern Newfoundland to its vanishing point against Hatteras.[2] This current contributes, if it does not largely provide for, a maximum rise of tide in Massachusetts Bay of from ten to twelve feet, while immediately to its south — as on Nantucket — the average tide is but little over three feet. The change in the height of the tide is in keeping with a change in the temperature of the water. It is cold north of Cape Cod, when it is relatively warm immediately to the south.

It was to this promontory of Cape Cod that the Gulf Stream (see Pilot Chart), brought navigators who had aimed to strike the coast at lower latitudes. Verrazano, for example, ignorant both of the power and direction of the Gulf Stream from the Straits of Florida, and of the eastward veering of the needle on the west side of the line of no variation, was conducted by invisible influences to the north of his purposed destination, — latitude 34° north. The master of the "Mayflower" was alike the unconscious victim of the Gulf Stream and magnetic deviation.[3] Kunstmann's gap, on one of his maps of the Atlantic coast, illustrates the

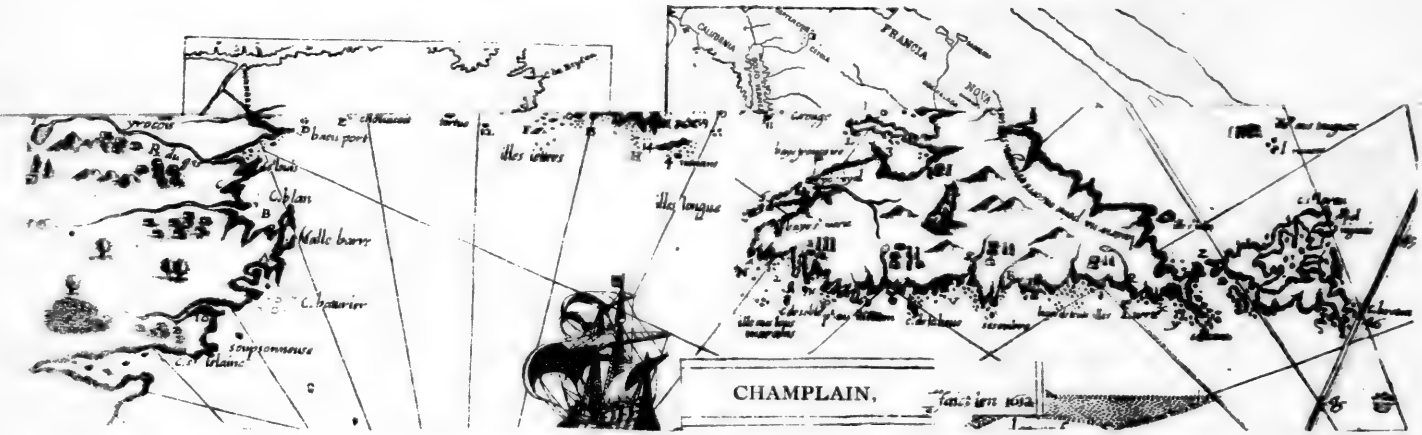
[1] The current varies from one to two and a half miles an hour, where observations have been made from some distance north of Belle Isle. (North Atlantic Pilot.) Anything more specific I have not found.

[2] A buoy drifted, as related on page 39, in the outer margin of the outer current from off Cape Race to Nantucket Shoals, through twenty and a half degrees of longitude and six degrees of latitude, between Nov. 2, 1887, and Dec. 1, 1887. (Hydrographic Bureau, Washington, D.C. See map of logs dispersed in storm, Hydrographic Bureau.) With a northeasterly wind, Bjarni and Capt. John Rut may both have felt the effect of the current. See pages 40–41.

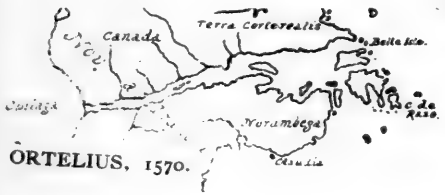
[3] The late J. Carson Brevoort was, I believe, the first to recognize the influence of the Gulf Stream on the landfall of the Pilgrims and of Verrazano.

WAS THERE A CITY OF NORUMBEGA IN THE 43d. DEGREE?

MICHAEL LOK, 1582.



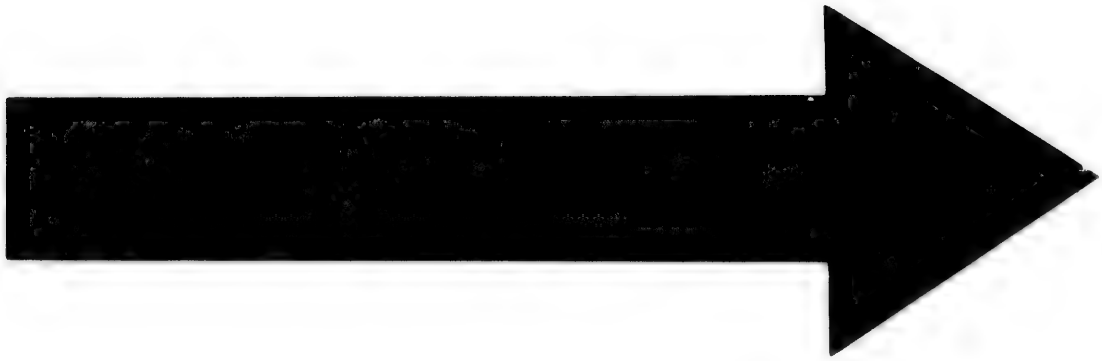
CHAMPLAIN,

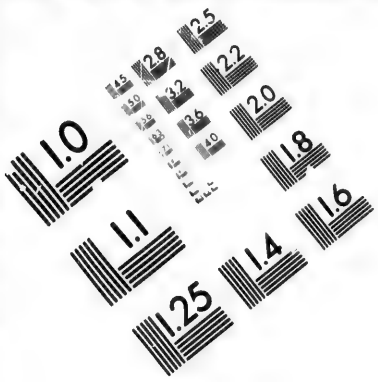


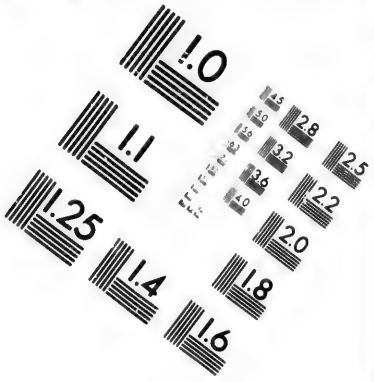
ORTELIUS, 1570.

SOLIS, 1598.

BOTERO, 1603.







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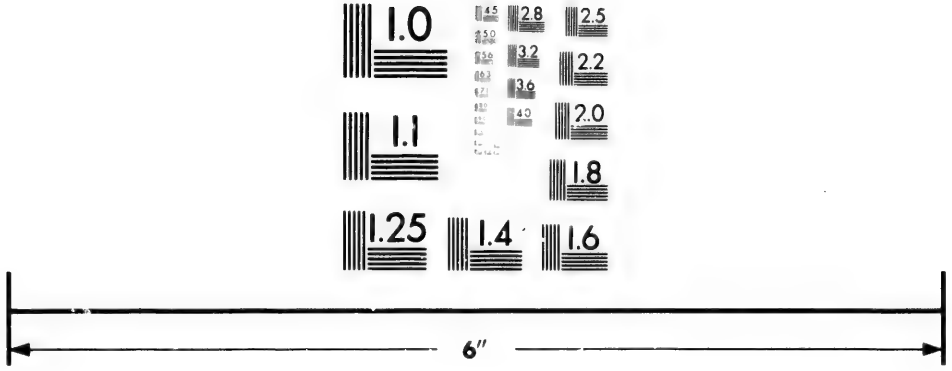

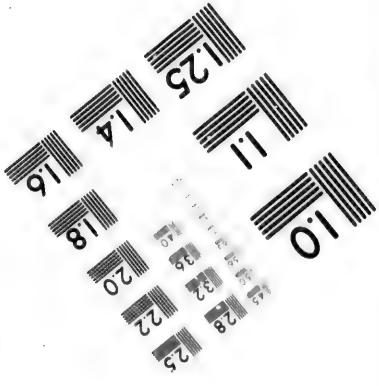

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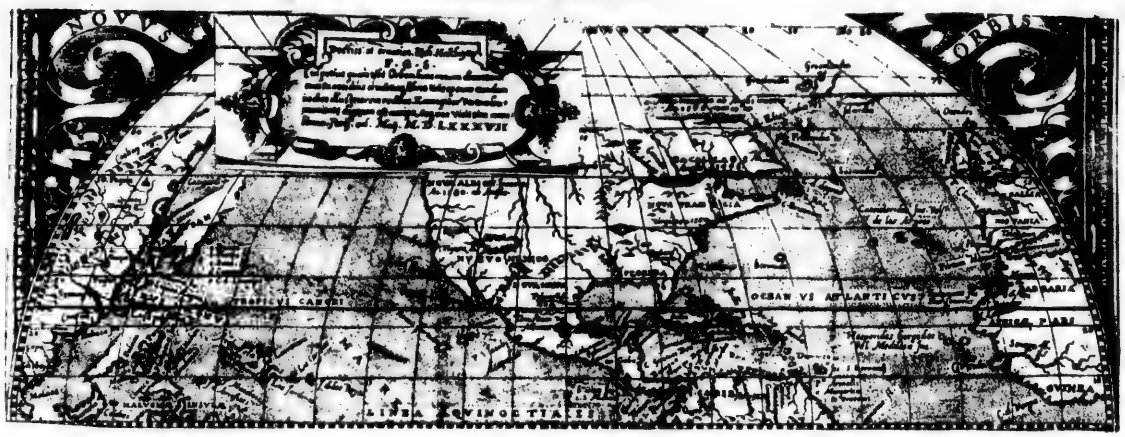
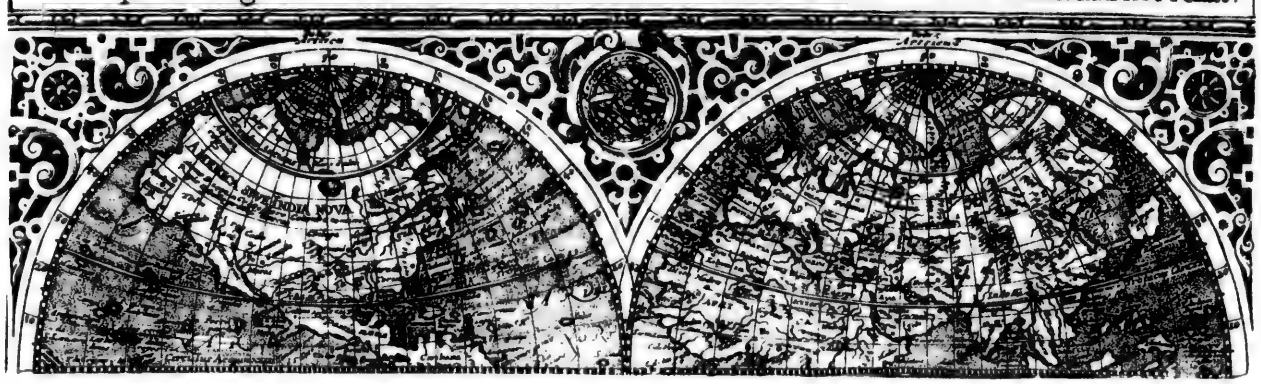
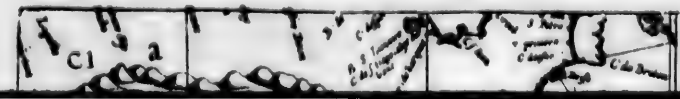
PETER MARTYR.



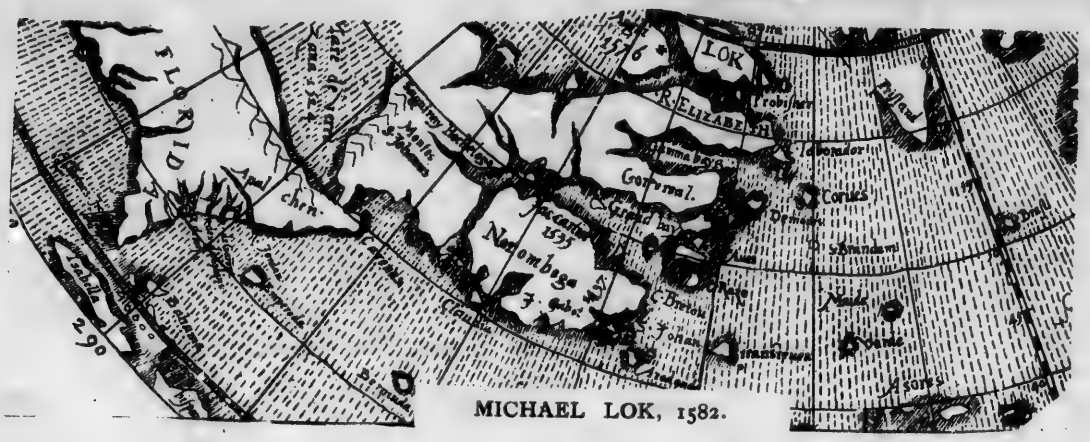
ORBIS TERRAE COMPENDIOSA DESCRIPTIO
ex ea, quam ex Magna Vniuersali Mercatoris Rumoldus Mercator fieri curabat in hāc cōmodiorē formā a Hieron: Porro redact:



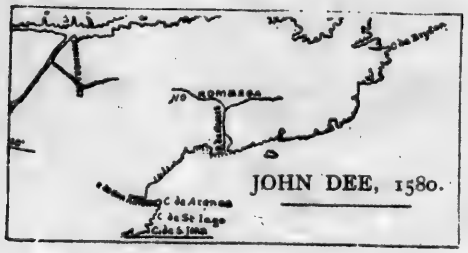


THEVET OF ABOUT 1556.

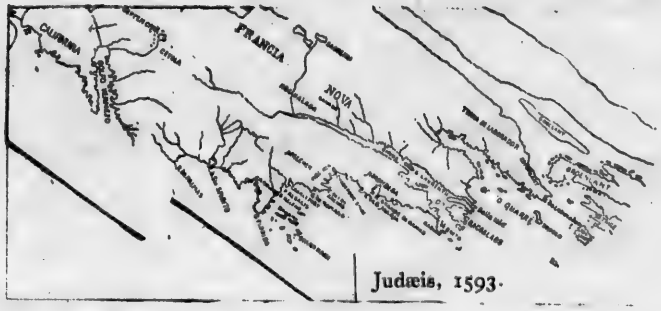
Gerard Mercator's Map, made in Duisburg in 1569.



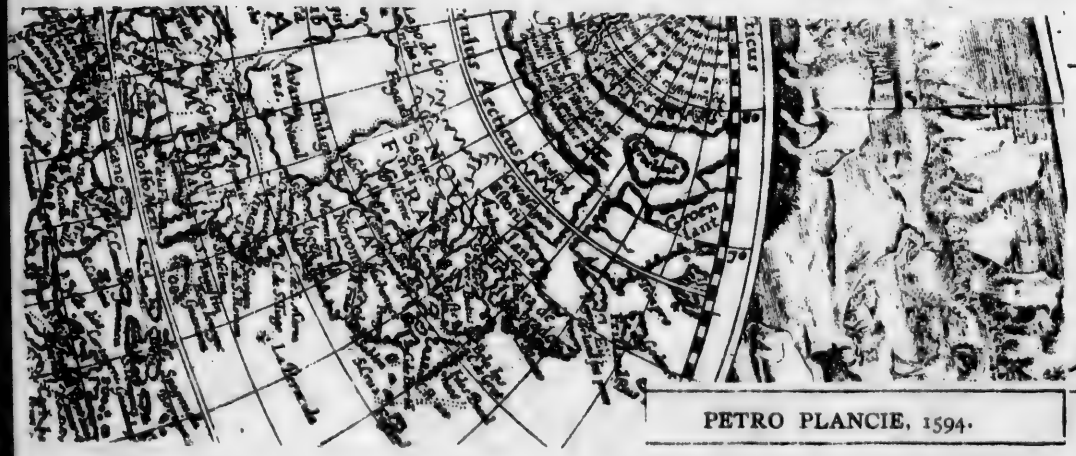
MICHAEL LOK, 1582.



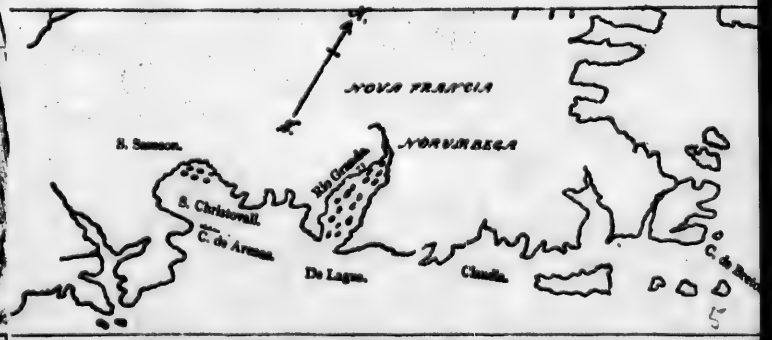
JOHN DEE, 1580.



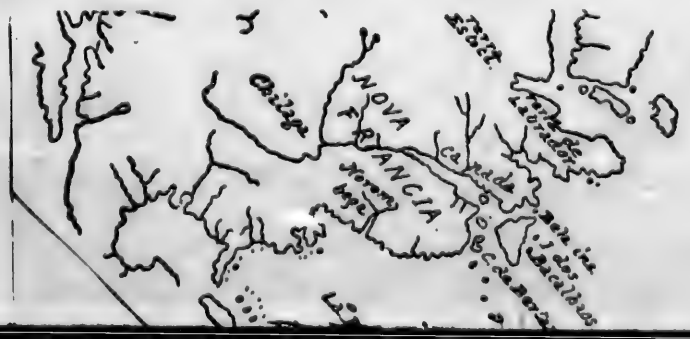
Judæis, 1593.



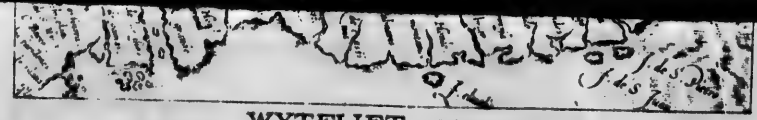
PETRO PLANCIE, 1594.



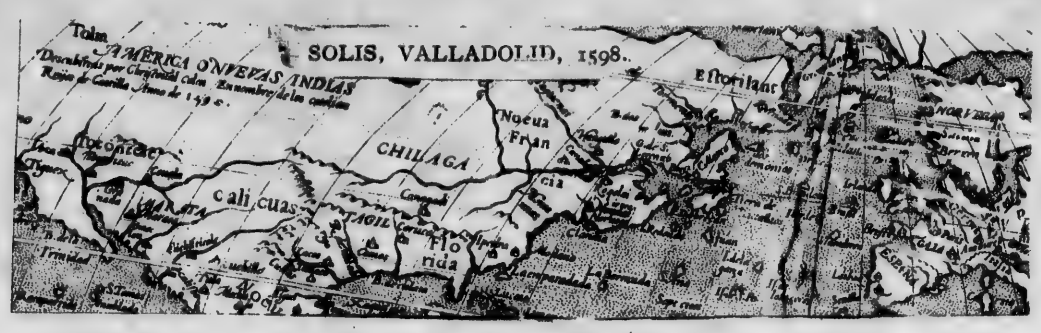
FROM THE MOLINEAUX GLOBE, 1592.



DE BRY, 1596.



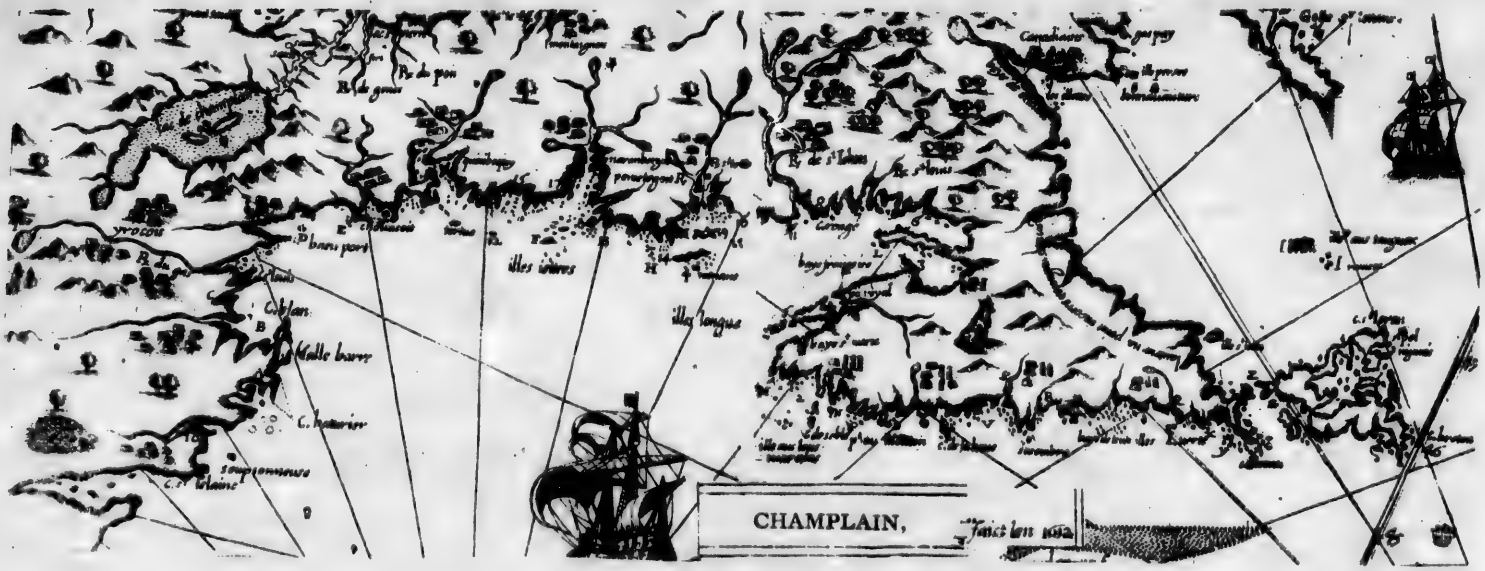
WYTFLIET, 1597.



SOLIS, VALLADOLID, 1598.

QUADUS, 1600.

HONDIUS MERCATOR, 1600.

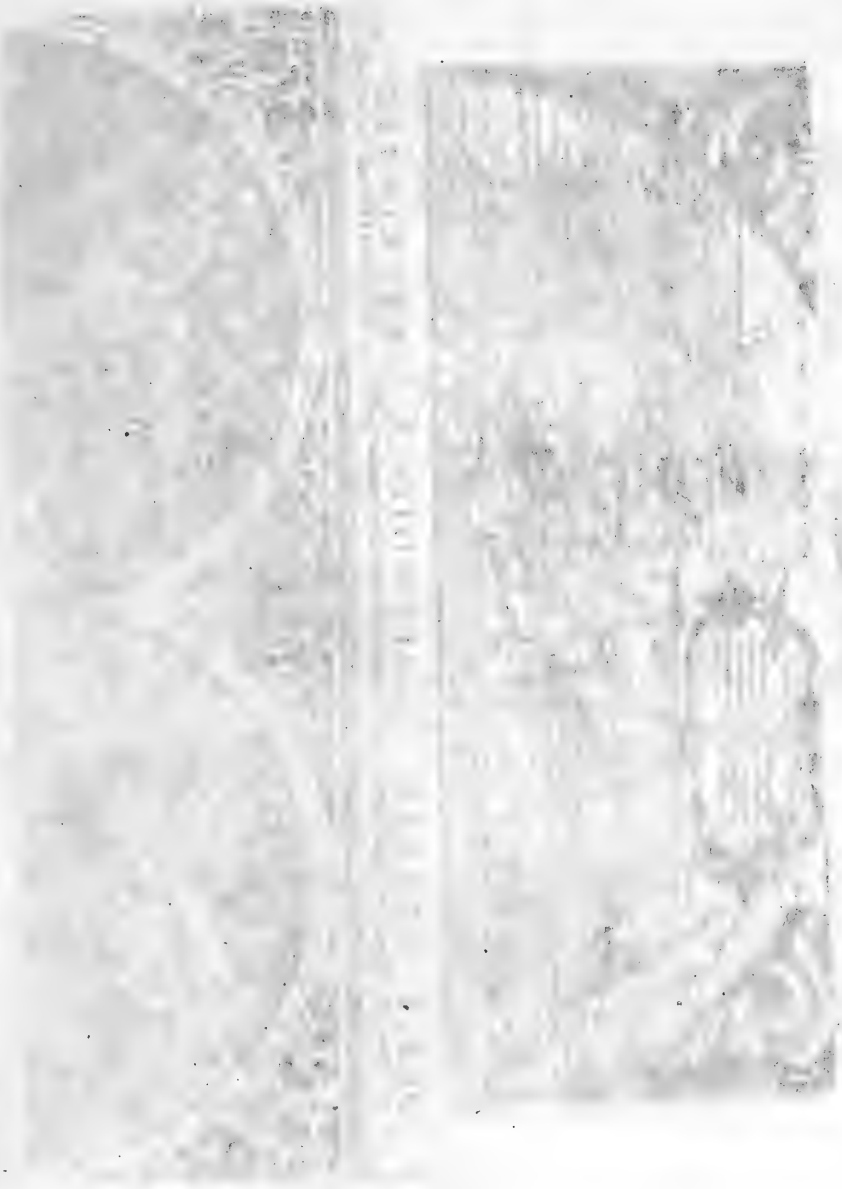


CHAMPLAIN,

ORTELIUS, 1570.

SOLIS, 1598.

BOTERO, 1603.



uniform experience. He did not sketch the coast, which it must have been guess-work to do. The cape of the Bertomens (Cape Breton = Cape Ann) and the short section to the south including the river and the coast immediately following show where the trustworthy cartography ceased. Thus we see on many maps the Chesapeake Bay placed side by side with the Bay of St. Christopher (Plymouth Harbor), the interval spanned with a comma. Sebastian Cabot's map of 1544 covers it with a panther's tail. Navigators had failed to reach the intervening shores; or if they did, had not found recognition.

To this Gulf Stream and the Arctic Current, as well as to the northeast and southeast winds, so frequent against the great salient, and the trend of the coast from the north to the pocket of Cape Cod, may have been largely due, from very early days, the visits to our immediate shores of the bold adventurers — the Basques and Bretons, the Portuguese and Spaniards — as well as of the navigators of England and France. Did the Basques early find the Baccalaos, and carry the name to their language? Was Cape Cod — still bearing its red cedars, the Ile arbres — by metathesis become Brazil, which so long held its place north of the tropics?

The fragment between Cape Cod and Cape Ann — this Massachusetts Bay, a crescent floating, a waif on the sea — was again and again placed on charts, with little or no extension north or south; or attached to the east coast of Asia, as on Ruysch's map. (See, for example, the maps of Schöner and the Lenox Globe.)

It was the chance landfalls of the navigators that revealed the presence of the cod, with which, as with the stock-fish, in Icelandic and Norwegian waters they were familiar; and its discovery on our shores gave, as we have seen, the great impetus to maritime enterprise in the north Atlantic in the sixteenth century.

It was mainly that they might profit by the industry of cod-fishing that the Portuguese and French and English came to Massachusetts Bay. It was to the circumstance of finding the cod along the Massachusetts shore,

— the Bacca-loo[1] (the Indian name of the cod-fish) against the New-foundland of John Cabot, — with their supposed coincident range, possibly more than to any other one thing, that we ascribe the march of those two names, Baccalaos and Newfoundland, side by side northward along the coast. They paused awhile beyond Cape Ann (the earlier Cape Breton) with the Dauphin map and Vallard, with the map of 1544 ascribed to Sebastian Cabot, Gastaldi and Ruscelli, with Merriam and Lok, against the Archipelago off the coast of Maine; and then with Diego Homem and Mercator, carrying features of the cluster opposite the mouth of the Penobscot, presented on Verrazano's map, they were largely transferred to the mouth of the great River of Canada, of Jacques Cartier, — the river St. Lawrence.

The great oceanic currents from the north nearer the shore and from the south farther east, and the prevalence of long northeast storms accompanied by fog and rain, were prominent among the agencies that determined Bjarni's earliest approach to Cape Cod; they were more or less the same that brought to the neighborhood of this bold projection John Cabot in 1497, and, as we have seen, the Bretons earlier, and the Basques possibly earlier still; and later, the Portuguese, and Verrazano and Thevet, and the Pilgrims. They were the same agencies that so long concealed from navigators[2] all detail of the region from St. Augustine to Chatham Light,

[1] See letter of Raimundus; Winsor, vol. iii. p. 54.

Bacca, Boca, Baxe, Baxos, occur on ancient maps as geographical words up and down the coast on both sides of North and South America, and on both sides of Africa. The word *Bacca* — compounded of *bih*, "water," and *akka*, "land" — is obviously autochthonous. What seem derivatives enter into European languages, ancient and modern. It is also Algonquin for "sheet of still water," surrounded more or less perfectly by land. *Loo* is still preserved in Mic-mac for "food" (Rand's Mic-mac Dictionary). *Baccaloo* is "bay-food." The name of an island off the coast of New-foundland is now spelled *Baccalieu*. The Portuguese (Ruysch's map) on the original "newe fonde lande" (see Rotz map) (first so called by Henry VII.), the coast of Massachusetts, gave the adjective form as qualifying an island, — *Insel Baccalaurus*. The Dutch along the south shore from Point Judy eastward (Juuide of Thevet) gave the form of easier utterance, — *Cabeljeau*. The German has *Kabeljau*. The Spaniard, from Don Quixote down to the bill of fare at Havana, calls the cod-fish *bacalaos*.

[2] The chart of Chaves which Oviedo saw is unhappily lost. Like that of Ribero, it must, of course, have had the aid of some Spanish log-books in its projection, of possible date earlier than Verrazano.

finally giving it up to the enterprise of the brilliant but ill-fated Raleigh in 1607, and two years later to Hendrik Hudson.

Early Outlines of Southeastern New England.

Let us glance at the coast of southeastern New England as preserved to us on earlier maps. I have added (see list, pages 47–48) photographic copies of fragments of a number of ancient maps, with some tracings and outlines of dates spanning a period of nearly nine hundred years.

Promontorium Vinlandiæ, on the map of Stephanius of 1570, is a part of the record of the Landfall of Leif, and was first seen by him in the summer of 1000 A. D.

In the explanation of the map, Stephanius remarks, as translated by Mr. J. Fulford Vicary, the author of "Saga Time":—

"The Geographical Society in Copenhagen have published a chart in their eighth number for the year 1885–1886. The date of this chart is 1570. It is by the rector of Skalholt School, Sigurd Stephanius. The chart is based on the historical Sagas.

"The explanation of the chart, as given by the worthy schoolmaster, Sigurd Stephanius, is literally translated. (*Saga Time*, p. 197.)

A. "This is where the English have come [Cape Ann to Marblehead], and has a name for barrenness, either from sun or cold.

B. "This is where Vinland lies, which, from the abundance of useful things or from the land's fruitfulness, is called good. Our countrymen [Icelanders] have thought that to the *south it ends with the wild sea, and that a sound or fjord separates it from America*. . . .

C. "A rocky land often referred to in histories [Helluland = Icaria = Newfoundland]."

A. "*This is where the English have come, and has a name for barrenness, either from sun or cold.*"

Looking at the outline across from Promontorium Vinlandiæ, one recognizes the angles of the coast at the northern margin of Massachusetts Bay from Marblehead Neck around Cape Ann. This includes the site of the Landfall of John Cabot in 1497, the Cavo de Yngla-Terra

(England = Britain = Breton), the Cape Breton and St. Johan of Allefonsce in the forty-third degree, — the modern Gloucester, the (N)oranbega of Hieronymus Verrazano's map (1529), and, possibly, the Norman's Ö (Island), still preserved as Norman's Woe near Norman's Cove on the local maps of Essex County.

The angle at A is where, in my letter to Judge Daly, March 1, 1885 I placed the Landfall of John Cabot in 1497.

The region occupied by the Skrælings, in the neighborhood of which according to the Sagas, Vineland is to be sought, is at B on the west side of Massachusetts Bay.

No rivers are indicated on the map of Stephanius; but on that of Lok, which contains the chart of Massachusetts Bay by John Cabot made in 1497, and on that of Cosa, 1500, — which I conceive to be the work of the careful sailor who made the voyage of 1497 with John Cabot, and afterwards shipped with Cosa (who was not personally on our coast), — we have, about midway of the bay, the mouth of a river confounded with a channel, connected with the St. Lawrence, and making an island as it also appears on Lok's map, and in it islands extending out into the sea. On neither of the maps is the name of the river given; but on the map of Ruysch (1507), which includes the region from Cape Ann around Cape Cod to Narragansett Bay, we have the river and islands at the mouth, and the river called *Rio Grande* (R Grādo, Portuguese). Allefonsce speaks (1543) of the region as having been discovered by the Portuguese.

Thevet gives the two names of the river which he heard, — the Agguncia of the Iroquois and the Norombegue of the French. On Mercator's map the name is Rio Grande, and the same on Solis's map, — on both of which we have the city of Norombegue. To the same river seem to have been given various other names, including Gomez, Gamas, Gas, and Guast,[1] less lasting. Verrazano (1524) gives it the name Anguileme, the translation of the Algonquin Mis-sha-um (the great parallel-sided)

[1] Guast, an officer of De Mont's expedition.

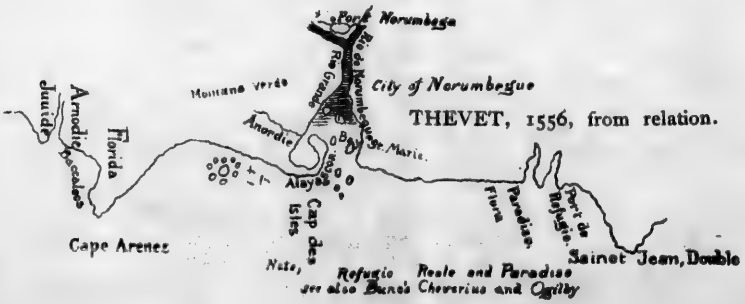
APE BRETONS, ONE

45° 30 AND 47°

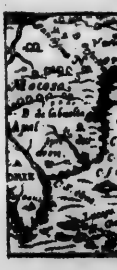
RELATIONS OF ALLEFONSCE TO THE TW

IN THE 43° AND THE OTHER BETW

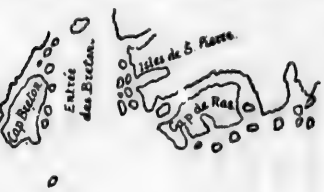
ALLEFONSCE, 1543.



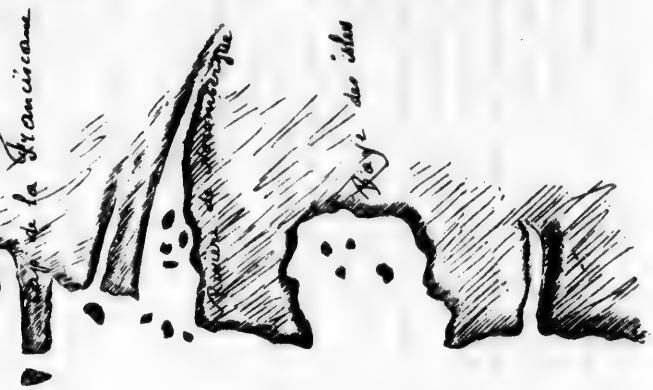
THEVET, 1556, from relation.

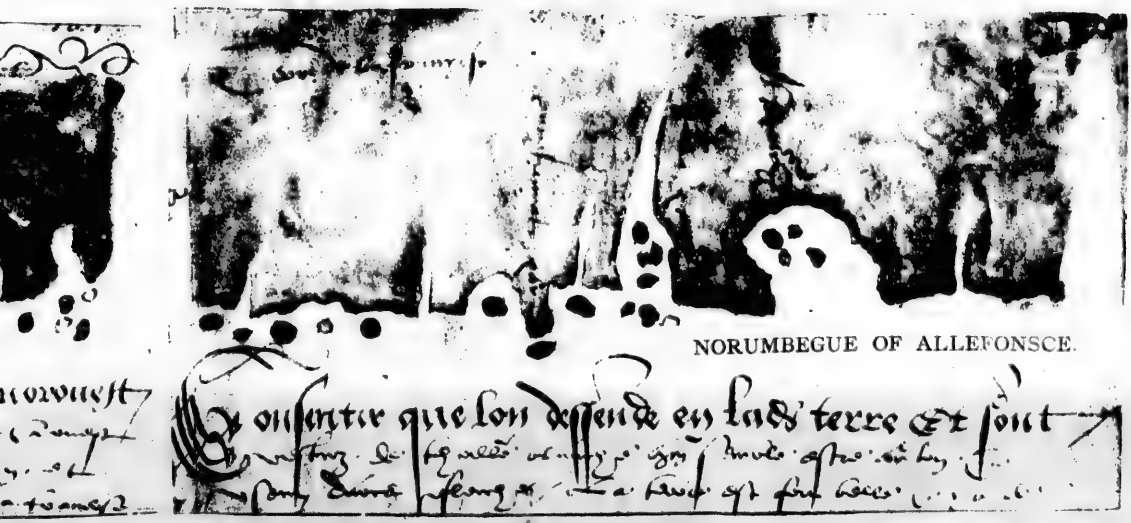


FONSCE TO THE TWO CAPE BRETONS, ONE
THE OTHER BETWEEN 45° 30 AND 47°



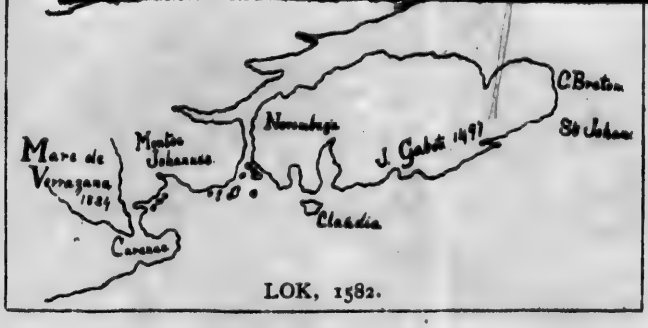
ALLEFONSCE, 1543.



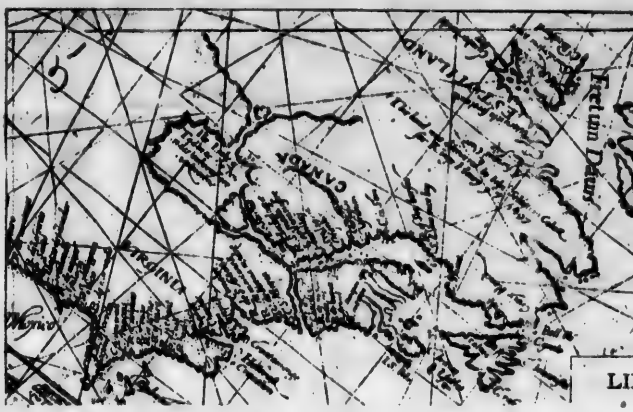


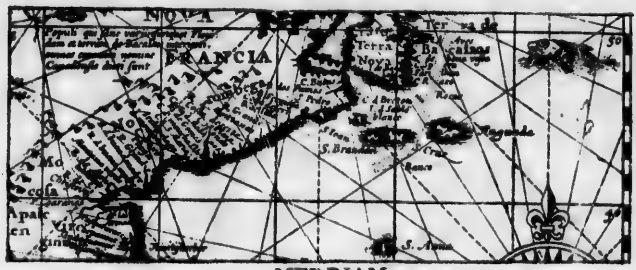
NORUMBEGUE OF ALLEFONSCE.

THEVET OF ABOUT 1556.



LOK, 1582.





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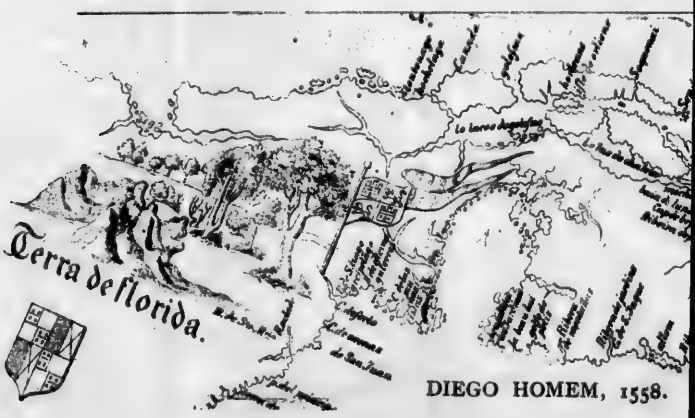
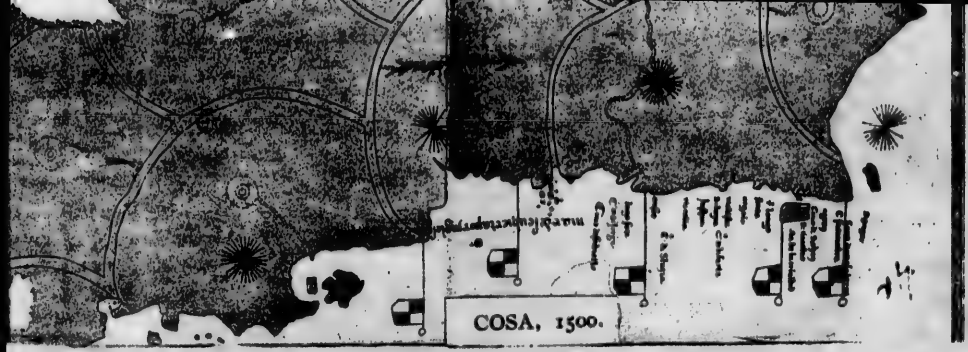
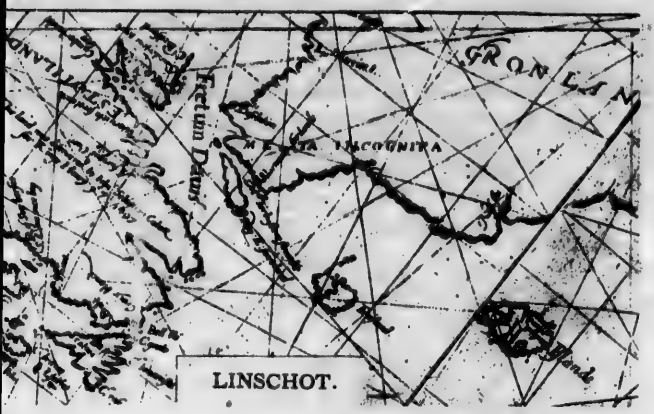


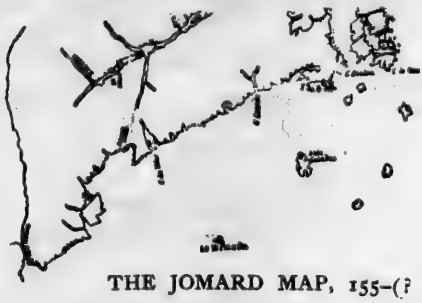
DIEGO HOMEM, 1558.



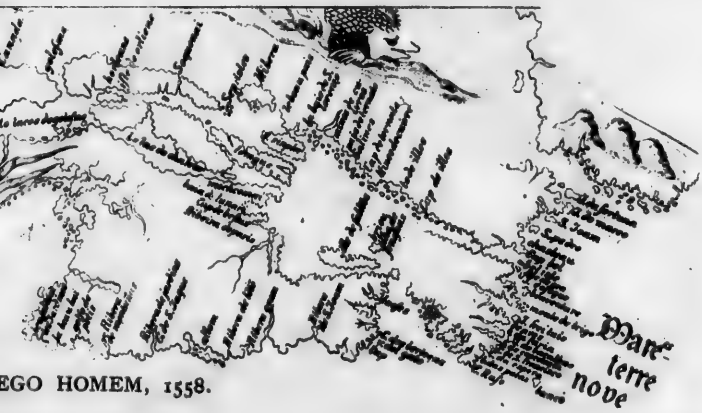
COSA, 1500.



LINSCHOT.

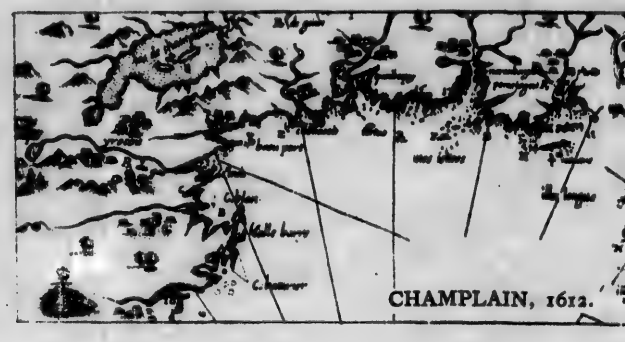


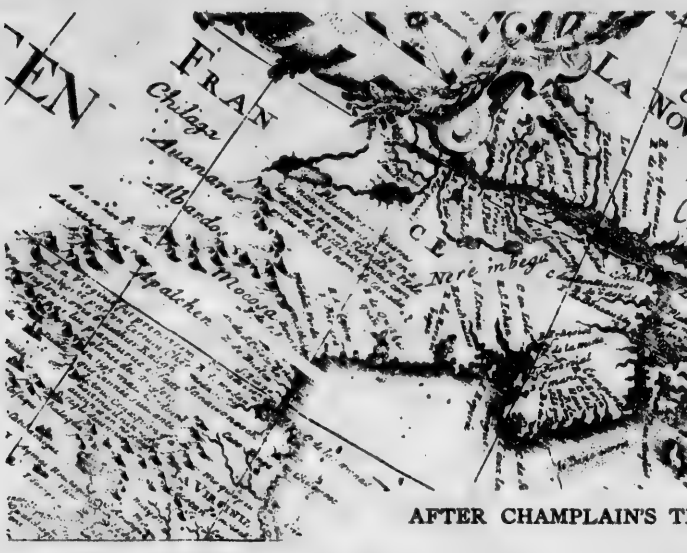
THE JOMARD MAP, 155-(?



EGO HOMEM, 1558.

SOLIS, 1598.


CHAMPLAIN, 1612.


FRAN
Chilege
Auanares
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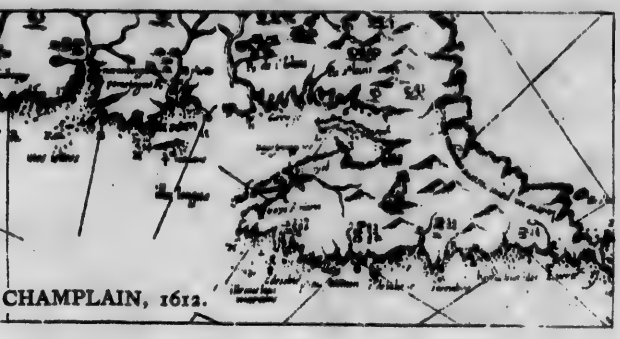
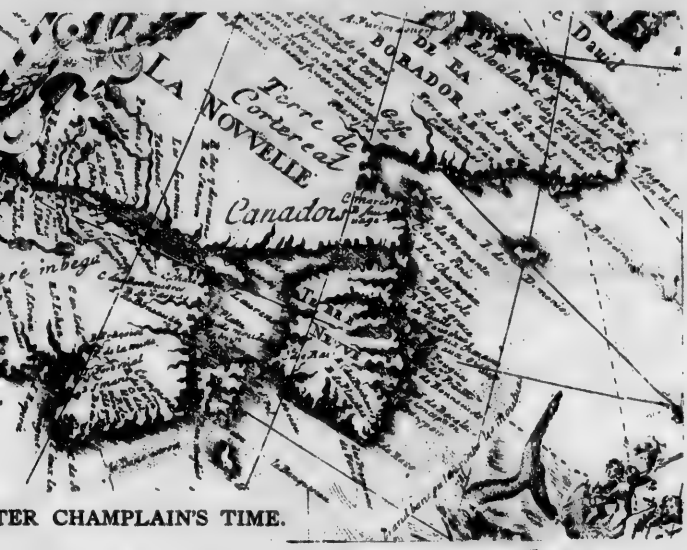
Mocoua
Nerembegue
AFTER CHAMPLAIN'S T

B. St. Christophers
Plymouth
Rio Pisc River
Mont. John
Rio San Andre
Pass River
Marshpit
Scrossa-nes
Quarrel
MASSACHUSETT
Pass River
Barnstable Harbor
Long Point
Monomoy
Nauset Harbor
Highland light
Lat. 42°
COAST S

SOLIS, 1598.



CHAMPLAIN, 1612.



TER CHAMPLAIN'S TIME.

or Big Eel River. On this river, near its mouth, is the name Norman Villa. The same name is found on the river called Sole on the globe of Ulpius, 1542. The river was sometimes called by the Indian descriptive name Mess-adchu-sec (great hill's mouth), as Rasles heard it; and Smith gave to it the name of his Prince, which it still bears, — the Charles. Kohl speaks of the alternation of the names Rio Grande and Norombegue, which, in common with Champlain and most other writers of the last three centuries, he confounds with the Penobscot, — the Pentagoet of Maine.

I may refer to the accompanying collections of tracings (see page 48) to show these alternations, and their uniform companionship with the island Claudia and what I conceive to be the outline of coast at Salem, which in my paper on the Landfall of Cabot I have likened, for convenience and also an argument, to the capital letter M. They will leave in the mind of the student no doubt on the point. These sheets will also serve to illustrate various points to be taken up later.

The main point to be established here and by these tracings is that the river midway between the Cape Breton of Allefonsce in the forty-third degree and the Carenas of Lok, or between Cape Ann and Cape Cod, having its mouth not far from Claudia, and having in and near its mouth many islands and rocks, is the modern Charles, finding its mouth in Boston Harbor in latitude 42° 22′.

We have been conducted to the fact of landing by Leif on the shore of a lake. Let us now return to the Saga of Erik the Red.

Summary of Bjarni's Return Voyage.

Bjarni related[1] that from the southernmost land he saw, leaving the land "on the larboard with their sheet on the land side," he sailed two days and two nights before he sighted land again. Now, assuming that the point from which he sailed was Cape Cod, and that the point

[1] See Appendix.

of land he saw first, after sailing forty-eight hours, was Cape Sable, the southwest reach of Nova Scotia, we find, estimating by the scale on the map, that he had sailed about two hundred and seventy-five miles. Then he sailed with "a fine breeze from the southwest for three days and three nights," and "saw a third land, which was high and mountainous, with snowy mountains." (Newfoundland is mountainous in the southern part, and has snow-covered mountains in the northern part.) "They let the sail stand [did not shorten], and kept along the land, and *saw it was an island.*" Then they turned from the land, and "stood out to sea with the same breeze" (from the southwest). But the wind increased, and "Bjarni bade them shorten [equivalent to taking a reef], and not sail more than ship and tackle could safely bear. After sailing three days and nights,[1] they made, the fourth time, land; and when they asked Bjarni whether he supposed this was Greenland, he replied, 'This country is most like what I have been told of Greenland. Here let us make for land.' They did so, and came to the land in the evening under a ness, where they found a boat. On this ness dwelt Bjarni's father Herjulf, and from that is called Hierulfsness."

Let us glance again at the

Summary of the Story of Leif.

Leif bought Bjarni's ship. Bjarni's story was already familiar to him. Leif organized a crew of thirty-five men, and sailed in the spring of the year 1000, reversing the track of Bjarni. In these days the story would be contained in the ship's log. He touched at the point Bjarni left last before reaching Hierulfsness, his father's residence. The Saga has preserved the name Leif gave, — Helluland (flat-rock land). "There was no grass to be seen; there were large snowy mountains up the country." The shores were flat.

Leif went on, still reversing Bjarni's route, till he came to the next

[1] Peringskjold says four days and nights.

salient, which was, in point of attractiveness, the opposite of Helluland. It was not mountainous, not rocky, not desolate, but wooded; was skirted with extensive white sand-beaches, and inviting to settlement. He landed, examined, and called it Markland (woodland). He resumed the reverse route of Bjarni, always with a northeast wind, and in two days came to the most southerly land that Bjarni had seen.

Leif's Route from his Landfall to the Site of his Houses.

We have followed Leif to his Landfall. We have seen that it was on an island at the north end of Cape Cod, now connected with the promontory. That this northern extremity of Cape Cod was the Kjalarnes of Thorwald and Thorfinn will become clear when we turn to the Sagas relating to these explorers.

It seems better to present here the different relations, or versions, or English translations of the story of Leif that have been studied by me.[1] They sometimes vary slightly from one another, but occasionally in a most important way. I have thought to present the remainder of Leif's story in sets of corresponding passages. This will enable the reader better to see the field of study upon which conviction must largely rest, and perhaps better enable him to understand the method of research.

Here follow, with Smith's, the corresponding passages in other versions of the story before me.

I.

Smith says: "Returning to their ship, they sailed through a bay which lay between the island and a promontory running toward the *northeast*, and directing their course westward, they passed beyond this promontory."

Beamish: "After that they went to the ship, and sailed into a sound which lay between the island and a ness [promontory] which ran out to the *eastward* of the land, and then steered westward past the ness."

[1] I do not distinguish between different versions, different relations, or different Sagas or Thaettir. The essential thing is to gain the pictures impressed on different minds by the same objects.

De Costa: "Then they went on board, and sailed into a sound that was between the island and a ness that went out *northward* from the land, and sailed westward past the ness."

James Eliot Cabot says, "*steered* westward."

II.

Smith: "In the bay there were shallows left of very great extent."

Beamish: "It was very shallow at ebb-tide, and their ship stood up so that it was far to see from the ship to the water."

De Costa: "There was very shallow water at ebb-tide, so that the ship lay dry; and there was a long way between their ship and the water."

Cabot: "There were great shoals at ebb-tide, and their vessel stood up, and it was far to see from the ship to the sea."

The language clearly refers to grounding in an ebb-tide in the mud. If the bottom had been gravel, the ship, having a keel, would have careened, not "stood up."

III.

Smith: "So great was the desire of the men to land, that without waiting for the high tide to carry them nearer, they went ashore where a river poured out of a lake. When the tide rose, they took their boat and rowed back to the ship, and passed first up the river and then into the lake. Having cast anchor," etc.

Beamish: "So much did they desire to land, that they did not wait until the water again rose under their ship, but ran at once on shore at a place where a river flows out of a lake; but so soon as the waters rose up under the ship, then took they boats and rowed to the ship, and floated it up the river and thence into the lake, and there cast anchor."

De Costa: "They were so desirous to get to the land that they would not wait till their ship floated, but ran to the land, to a place where a river comes out of a lake. As soon as their ship was afloat, they took to the boats, rowed to the ship, towed her up the river and from thence into the lake, where they cast anchor."

Cabot: "But they were so curious to fare to the land that they could not bear to bide till the sea came under their ship, and ran ashore where a river flows out from a lake. But when the sea came under their ship, then took they the boat and rowed to the ship, and took it up into the river and then into the lake, and there cast anchor."

Arngrimsson says, "moved," or "floated," — not moved *it*, but moved *with* it, as it *floated*.

IV.

Smith: "They disembarked, and erected temporary habitations. Having subsequently determined, however, to remain there during the winter, they built more permanent dwellings."

Beamish: "They brought up from the ship their skin cots, and made there booths. After this they took counsel, and formed the resolution of remaining there for the winter, and built there large houses."

De Costa: "They carried their beds out of the ship, and set up their tents. They resolved to put things in order for wintering there, and they erected a large house."

Cabot: "Afterwards they took counsel to stay there that winter, and made there great houses."

Arngrimsson is substantially the same as De Costa. See Appendix.

V.

Smith: "Their dwellings being completed, Leif said to his companions, 'I propose that our numbers be divided into two companies, for I wish to explore the country; each one of these companies shall alternately remain at home and go out exploring. Let the exploring party, however, never go farther than they may return the same evening; neither let them separate one from another.' It was so arranged. Leif himself, on alternate days, went out exploring and remained at home."

Beamish says substantially the same. "Now they did so for a time."

De Costa adds: "This they continued to do for some time." He uses "fellow-travellers" instead of "companions."

Cabot says: "But when they had ended their house-building, then said Leif to his companions, 'Now let our company be divided into two parts, and the land kenned; and one half shall ken the land, and fare not further than that they may come home at evening, and they shall not separate.' Now so they did one time. Leif changed about, so that he went with them [one day], and [the next] was at home at the house."

VI.

Smith: "So great was the goodness of the land that they conceived that cattle would be able to find provender in winter, none of that intense cold occurring to which they were accustomed in their own country, and the grass not withering very much."

Beamish: "The nature of the country was, as they thought, so good that cattle would not require house-feeding in winter, for there came no frost in winter, and little did the grass wither then."

De Costa: "The country appeared to them of so good a kind that it would not be necessary to gather fodder for the cattle in winter. There was no frost in winter, and the grass was not much withered."

Cabot: "There was the land so good, as it seemed to them, that no cattle would want fodder for the winter. There came no frost in the winter, and little did the grass fall off then."

VII.

Smith: The equality in the length of the days was greater there than in Greenland or Iceland. On the shortest day the sun remained above the horizon from half-past seven in the morning till half-past four in the afternoon.

Beamish: "Day and night were more equal than in Greenland and Iceland, for on the shortest day was the sun above the horizon from half-past seven in the forenoon till half-past four in the afternoon."

De Costa: "Day and night were more equal than in Greenland and Iceland, for on the shortest day the sun was in the sky between *eyktarstad* and the *dagmalastad*."

Arngrimsson: Same as De Costa.

Cabot: "Day and night were more equal than in Greenland or Iceland; the sun had there *eyktarstad* and *dagmalastad* on the shortest day."

The Saga says: "Meira var thar jafndaegri en a Graenlandi edr Islandi; sol hafd thar eyktars-tad ok dagmala-stad um skamdegi."

Literally translated, it reads, —

"More was there equality-of-day-and-night than in Greenland or Iceland; sun have there afternoon-lunch-time and breakfast-time on the shortest day."

Rafn translates the Saga into Latin as follows: —

Ibidem major, quam in Graenlandia aut Islandia, fuit dierum æqualitas; ubi dies brevissimus erat, sol ubi locum habuit (supra horizontem fuit) ab hora ante meridiem dimidiata octava, usque ad horam quintam post meridiem dimidiatam.

The meaning of *eyktarstad* was discussed under the head of *Latitude*, and will be resumed further on.

VIII.

Smith: "It happened one evening that one of the company was missing. This was Tyrker the German. Leif felt much concern for him, . . . and went with twelve others to seek the man. When they had gone but a short distance from the dwelling Tyrker met them. 'Why have you stayed out so late, friend?' said Leif. 'I have not been much farther, . . . but I have found vines and grapes.' 'Is this true?' said Leif. 'Yes; indeed it is,' answered he. 'I was brought up in a land where there was abundance of vines and grapes.'"

Beamish: Substantially the same, except he says, "Why wert thou so late, my fosterer?"

Cabot says, "my fosterer."

De Costa says: "Why art thou so late, my foster-father?"

Arngrimsson uses also the expression "foster-father."

IX.

Smith: "They passed the night in sleep. On the following morning Leif said to his companions: 'There are two matters now to be attended to on alternate days, — to gather grapes or cut down vines, and to fell timber with which we may load the ship.' The task was immediately commenced. It is said that their long-boat was filled with the grapes.[1] And now, having felled timber to load their ship, and the spring coming on, they made all ready for their departure.

"Leif gave the land a name expressive of its good qualities, and called it Vineland (land of wine). Then they put out to sea, having a fair wind, and at length came within sight of Greenland and her icy mountains."

Arngrimsson says: "A cargo of wood was hewn for the vessel.[2] . . . There was self-sown corn," — corn growing spontaneously.

Beamish says: "Now was a cargo cut down for the ship;" they saw Greenland, and the "mountains below the jokells."

[1] The grapes may have dried on the vines and been gathered in that condition, which seems more probable; or they may have been gathered soon after Tyrkir's surfeit, and dried before being shipped in the long-boat. The small boat at the stern was ready to use for the rescue of the ship-wrecked sailors on the home-bound voyage. We see that the vessel was a merchantman, square at the stern, — *not a Viking ship, sharp at both ends.* It had been bought of the Supercargo, Bjarni Herjulfson.

[2] "Arboresque mösuræ," trees bearing warts, or burrs, or borls. Next to the preservation of the name Kjölr-naes in Coaranes and Carenas, the hewing of burrs, or māsur wood, for shipping is of the first significance as the key to the story of the later Vineland.

De Costa: "A cargo of wood was hewn for the vessels, . . . lands below the ice mountains."

Cabot: "Now was hewn a cargo for the ship, . . . fells under the glaciers."

All say that Leif called the land Vineland, from its products, or qualities, or sort.

Summary of the Voyage from the Landfall to the Site of the Houses.

We have seen that, "returning to their ship, they sailed through a bay which lay between the island and a promontory running from the mainland toward the northeast, and directing their course westward they passed beyond this promontory."

They came across the mouth of Cape Cod Bay, past the Gurnet, and Cohasset rocks, and into Boston Bay.

"In the bay there were great shoals at ebb-tide, and the vessel stood up, and it was far to see from the ship to the sea."

They grounded at ebb-tide on soft bottom against Fort Point, opposite Noddle's Island (East Boston).

"So great was the desire of the men to go ashore, that they would not wait the return of the tide, but sprang ashore and ran to the land where a river flows out of a lake."[1]

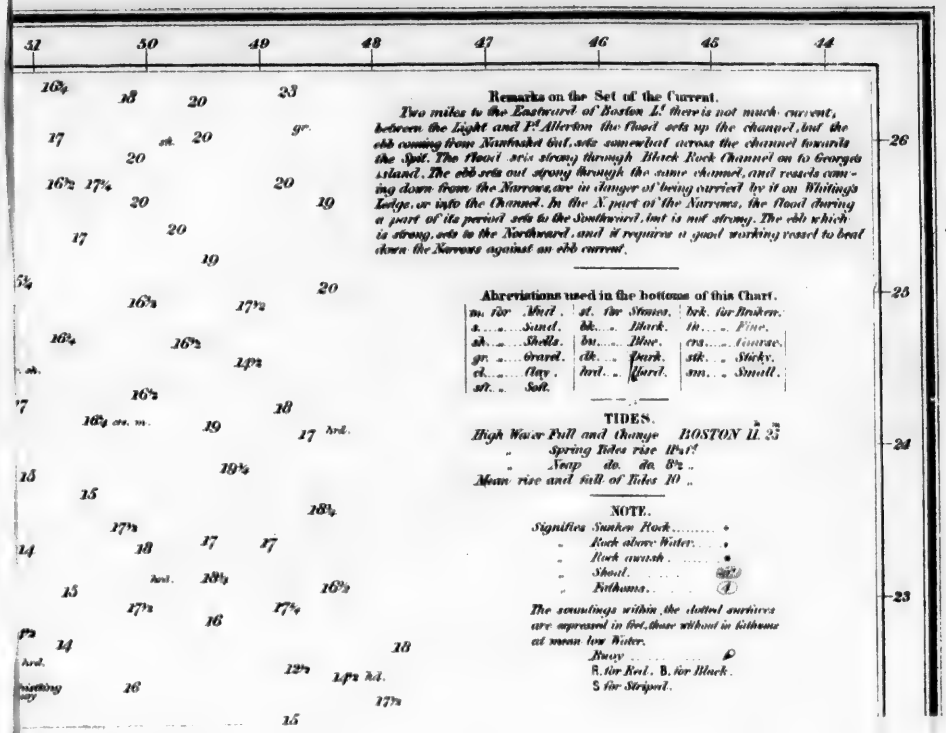
The mouth of the river between Fort Point and Noddle's Island.

"So soon as the waters rose up under the ship, then took they their boats and rowed to the ship, and moved it up the river, and thence into the lake, and there they cast anchor."

[1] In one of Thorfinn's relations it is mentioned that "before the mouth of the River were great Islands." This may refer to the outer mouth at Nantasket. It may have also included Noddle's Island, Castle Island, Governor's Island, and many others within the bay.

They had grounded on ebb-tide (it was in the neighborhood of half-tide); they floated off on flood tide. They moved — *floated* — up the river. They could not go ashore in the lake (the Back Bay and meadows). Why? *Because there was a great extent of mud on either side of the channel.* (See Coast Survey Chart of Boston.)

This Back Bay and meadows covered at high tide was Thorfinn's Hóp, — the small landlocked bay, salt at flood-tide, and fresh at ebb. (Vigfusson.) See Map of Cambridge and inscriptions



Remarks on the Set of the Current.

Two miles to the Eastward of Boston L.t there is not much current, between the Light and P.t Allerton the flood sets up the channel, but the ebb coming from Nantasket Gut, sets somewhat across the channel towards the Spit. The flood sets strong through Black Rock Channel on to Georges Island. The ebb sets out strong through the same channel, and vessels coming down from the Narrows, are in danger of being carried by it on Whitings Ledge, or into the Channel. In the N. part of the Narrows, the flood during a part of its period sets to the Southward, but is not strong. The ebb which is strong, sets to the Northward, and it requires a good working vessel to beat down the Narrows against an ebb current.

Abbreviations used in the bottoms of this Chart.

m. for	Mud.	st. for	Stones.	brk. for	Broken.
s. ..	Sand.	bk. ..	Black.	fn. ..	Fine.
sh. ..	Shells.	bu. ..	Blue.	crs. ..	Coarse.
gr. ..	Gravel.	dk. ..	Dark.	stk. ..	Sticky.
cl. ..	Clay.	lird. ..	Hard.	sm. ..	Small.
sft. ..	Soft.				

TIDES.

High Water Full and Change BOSTON H. 25

" Spring Tides rise 11 Feet

" Neap do. do. 8½ "

Mean rise and fall of Tides 10 "

NOTE.

Signifies Sunken Rock .....

" Rock above Water .....

" Rock awash .....

" Shoal .....

" Fathoms .....

The soundings within the dotted surfaces are expressed in feet, those without in fathoms at mean low Water.

Buoy .....

R. for Red. B. for Black.

S for Striped.

09 08 07 06 05 04 03 02

ELDRIDGE'S NEW CHART OF BOSTON HARBOR.

COMPILED FROM THE LATEST SURVEYS,

BOSTON, 1884.

Published by S. THAXTER & SON 125 State St.

Bearings & Distance of dang

Minots Ledge Light House
Harding's Ledge S.E.¾ S.
Thieves Ledge E. by S½ S.
Boston Ledge E. ¾ N.
Martins Ledge N.E. by E. ¾ E.
Fewksbury Rock N.E. ¾ E.
Rock S.¾ E.
Nash's Rock S.W.¾ W.
Commissioners Ledge N.½ W.
Centurion W.S.W.
Toddy Rocks S.W. by W.

Bearings and Distance from

Whitings Ledge N.N.W. ⅜ m
Shoal Spot of 12f.t S.W. by
For depth of water on the ab

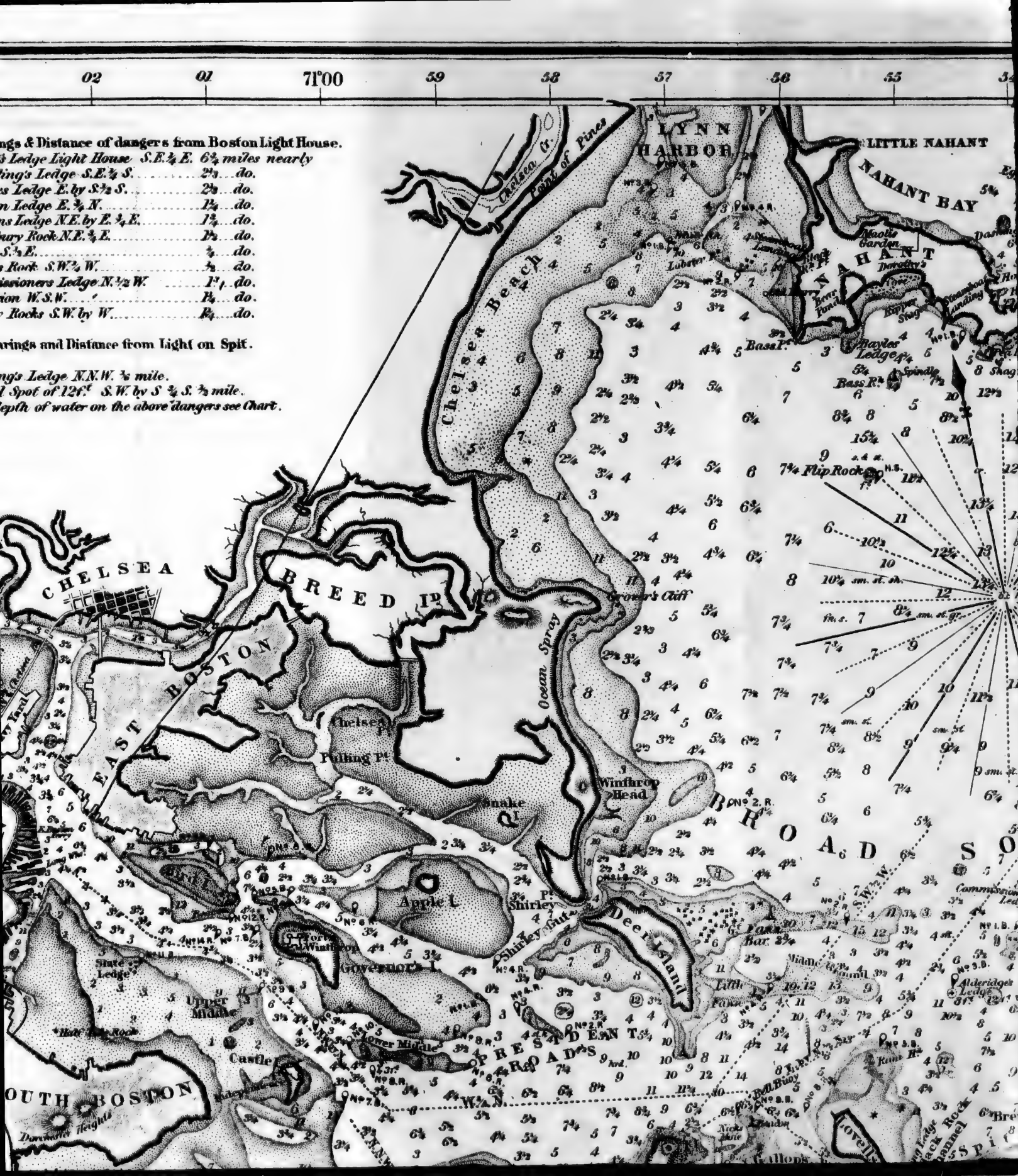
BEARINGS AND DISTANCE of DANGERS.

Devils Back E. by N. ¾ N. 2¾ miles from Long Island Light and N. by W.¼ W. from Boston Light house, distance 1½ miles.
Maffit's Ledge bears from Long Island Light E. by N.¾ N. distance 3 miles nearly. From Boston Light N.¾ E. 1¾ miles
Alderidge's Ledge bears from Long Island Light E. by N.½ N. distance 2 miles nearly. From Boston Light house N.W. by N. distance 1½ miles.
For depth of water on the above dangers, see Chart.
There are many rocks and shoals in the vicinity of Broad Sound relative to the depth and position of which, see Chart.

Ranges.

Long Island Light, and Red Light on Spit in range clears the Harding's, and leads to buoy on 3f.t Rock, off P.t Allerton. Going up the W. Channel or back way, care should be taken not to shut Governor's Island in with Spectacle P.t in order to clear Sculpin Ledge.

20 21 22 23 24 25 26


71°00
02
01
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58
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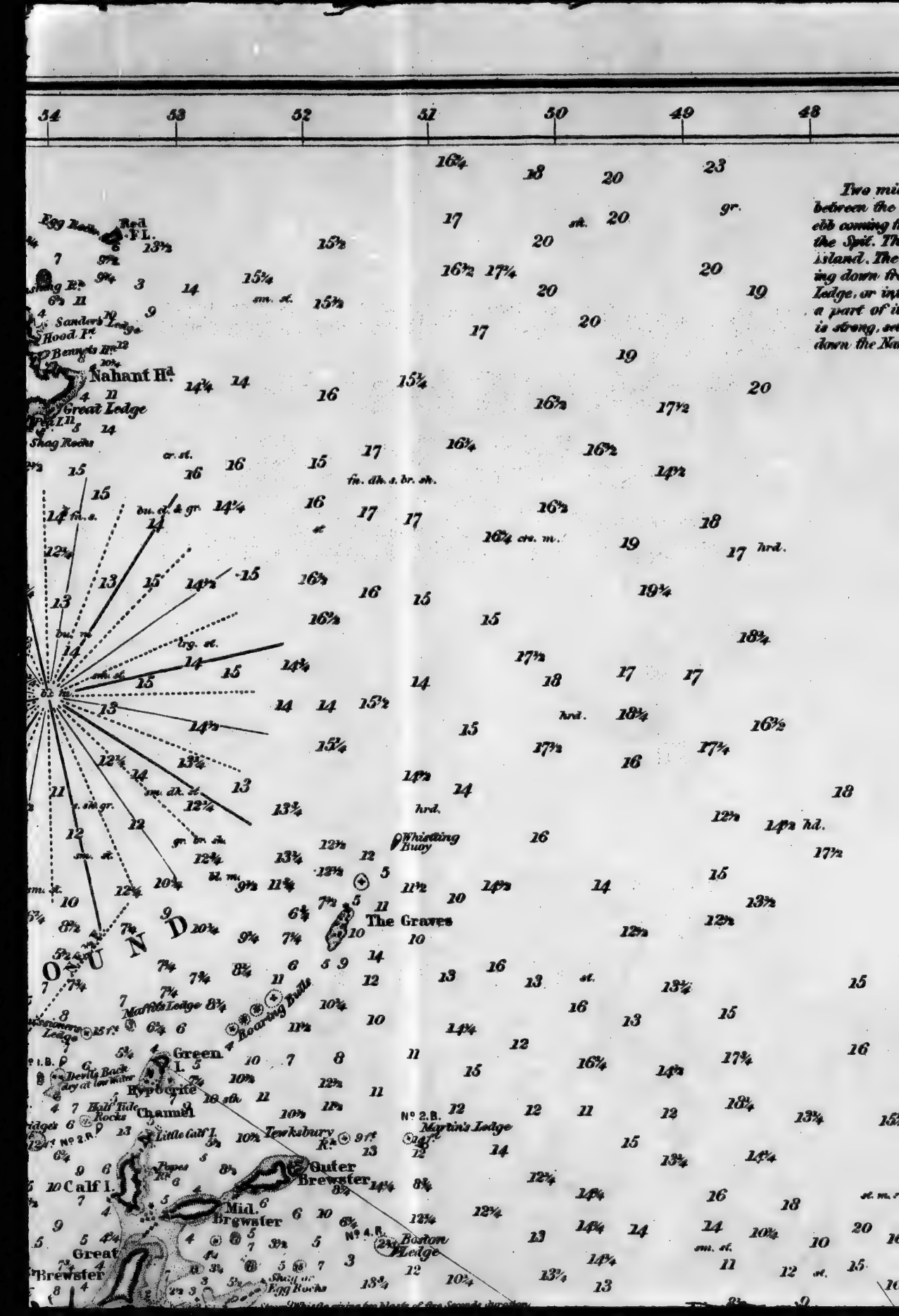
56
55
Bearings & Distance of dangers from Boston Light House.
Light House Ledge Light House S.E.¼ E. 6¾ miles nearly
Ledge S.E.¼ S. 2⅔ do.
Ledge E. by S½ S. 2⅔ do.
Ledge E. ¾ N. 1¾ do.
Ledge N.E. by E. ¾ E. 1¾ do.
Rock N.E. ¾ E. 1½ do.
¾ E. ¾ do.
Rock S.W.¾ W. ½ do.
Commissioners Ledge N.½ W. 1¾ do.
W.S.W. 1¼ do.
Rocks S.W. by W. 1¼ do.
Bearings and Distance from Light on Spit.
Ledge N.N.W. ⅜ mile.
Spot of 12f. S.W. by S ⅜ S. ⅓ mile.
Depth of water on the above dangers see Chart.
LYNN HARBOR
LITTLE NAHANT
NAHANT BAY
NAHANT
Chelsea Beach
Point of Pines
Chelsea Cr.
Maolis Garden
Bass Pt.
Bass R.
Bayles Ledge
Flip Rock
Grover's Cliff
Ocean Spray
CHELSEA
BREED Id.
EAST BOSTON
Chelsea Pt.
Pulling Pt.
Snake I.
Winthrop Head
BROADS
Apple I.
Shirley Pt.
Shirley Gut
Deer Island
Governor's I.
Fort Winthrop
Upper Middle
Lower Middle
Castle I.
PRESIDENT ROADS
SOUTH BOSTON
Dorchester Heights
Nicks Rock
Gallops
Lovells
Alderidges Ledge
Commissioners Ledge
Brewsters
Spit


54
53
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51
50
49
48
Egg Rocks
Red
F L.
Sanders Ledge
Hood Pt.
Bennets Pt.
Nahant Hd.
Great Ledge
Shag Rocks
The Graves
Whistling Buoy
Roaring Bulls
Green
I.
Hypocrite
Channel
Half Tide
Rocks
Little Calf I.
Tewksbury
Rk.
Martin's Ledge
Outer
Brewster
Calf I.
Mid.
Brewster
Great
Brewster
Boston
Ledge
Shag
Egg Rocks
Two mi
between the
ebb coming
the Spit. Th
Island. The
ing down fr
Ledge, or in
a part of i
is strong, se
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48 47 46 45 44

26 25 24 23 22 21 20

Remarks on the Set of the Current.

Two miles to the Eastward of Boston L.t there is not much current, between the Light and P.t Allerton the flood sets up the channel, but the ebb coming from Nantasket Gut, sets somewhat across the channel towards the Spit. The flood sets strong through Black Rock Channel on to George's Island. The ebb sets out strong through the same channel, and vessels coming down from the Narrows, are in danger of being carried by it on Whitings Ledge, or into the Channel. In the N. part of the Narrows, the flood during a part of its period sets to the Southward, but is not strong. The ebb which is strong, sets to the Northward, and it requires a good working vessel to beat down the Narrows against an ebb current.

Abreviations used in the bottoms of this Chart.

m. for Mud.	st. for Stones.	brk. for Broken.
s. ... Sand.	bk. ... Black.	fn. ... Fine.
sh. ... Shells.	bu. ... Blue.	crs. ... Coarse.
gr. ... Gravel.	dk. ... Dark.	stk. ... Sticky.
cl. ... Clay.	hrd. ... Hard.	sm. ... Small.
sft. ... Soft.		

TIDES.

High Water Full and Change BOSTON 11h 25m
" *Spring Tides rise* 11 ft
" *Neap do. do.* 8½ "
Mean rise and fall of Tides 10 "

NOTE.

Signifies Sunken Rock ....
" *Rock above Water* ....
" *Rock awash* ....
" *Shoal* ....
" *Fathoms* ....

The soundings within the dotted surfaces are expressed in feet, those without in fathoms at mean low Water.

Buoy ....
R. *for Red.* B. *for Black.*
S *for Striped.*

17 hrd. 18¾ 16½ 18 14½ hd. 17½ 13½ 15 14 16 7¾ 15¾ 15 18¾ 13¾ 15¾ 16¾ 12¾ 14¾ 14 16 st. 16 18 st. m. s. 21 16¾ 14¾ 10¾ 20 10 sm. st. 10 12 st. 15 27 10 11 12 18

ABURY

SAILING DIRECTIONS.

19

When near Minots Ledge, bring the Light to bear S. E. by S. and steer N. W. by N. until Boston Light bears W. N. W. on which bearing keep it and run for it until within 1¼ miles of the Light. Point Allerton will then bear S. W. ¾ W. 1¼ miles distant, and you will have a depth of 12 fathoms water, then steer W. making the course good, until the Red Light on the Spit bears N. W. ½ W. run for it and you will pass a short distance East from the buoys on the Centurion. Give the Light on the Spit a small berth leaving it on the starboard hand, and steer N. W. ½ West (taking care to make allowance for the current as described on the right) until up with the East end of Gallops Island, keep mid-channel, course about

18

N. W. by North, until up with Nicks Mate, which is left on the port hand. When Long Island Light bears W. S. W. steer W. ¾ N. 2¾ miles, the course is then about N. W. by N. to the Upper Middle buoy. Sailing this last course the black buoys are left on the port hand, and red on the starboard hand, after passing the buoy on the Upper Middle, run N. W. by W. ¾ mile to avoid the shoal spot of 12 feet, thence about N. W. by N. to the anchorage. The sailing lines on the Chart, mark the best water of the Main Ship Channel.

Vessels of not more than 8 or 9ft. draft, wishing to enter Boston Harbor by the way of Broad Sound, may bring Long Island Light to bear S. W. ½ W. on which bearing keep it, and run for it, until within ½ mile of the Light, when the course is as above. There is another Channel to enter the Harbor through Broad Sound, for information in relation to it see sailing lines on Chart

17

For directions to sail up the Western or back way, see Chart.

Beating into Boston Harbor make use of the Chart, as that will be the best guide.

To the Fishermen.

16

A tree on Little Hog Island, just open to the Southward of Pt. Allerton Hill, and Green Island open to the Eastward of the Outer Brewster, marks the spot of 4½ fathoms on Thieves Ledge. Two huts on Stony Beach, just open to the Northward of Nantasket Hill bank, and barn on Peddock's Island open to South of bank, marks the Flounder Ground.

Note. *The Channel between Georges I.d and the Spit, is rapidly filling up.*

15

DORCHESTER

Savin Hill

Neponset Village

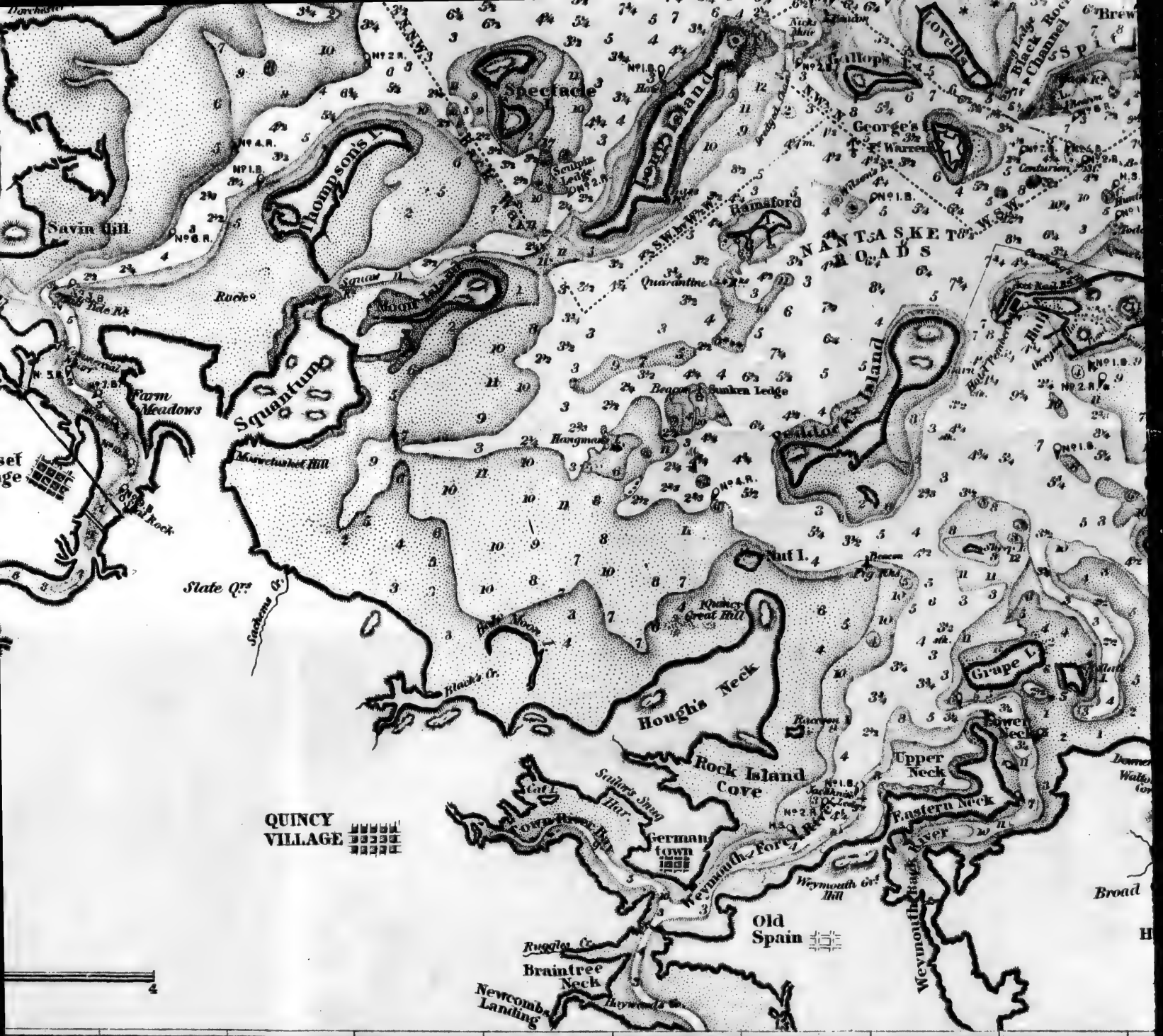
Nautical Miles.

¼ ½ ¾ 1 2 3 4

42°24

09 08 07 06 05 04 03 02

Entered according to Act of Congress in the year 1861 by Samuel T. Dowling in the Clerks Office of the District Court of the District of Massachusetts.


Spectacle
Long Island
Thompson's I.
Savin Hill
Moon Island
Squantum
Farm Meadows
Hangman
Beacon & Sunken Ledge
Peddocks Island
Hamsford
NANTASKET ROADS
Quarantine
Hull
Nut I.
Slate Qrs
Sachems Ct.
Black Cr.
Quincy Great Hill
Hough's Neck
Rock Island Cove
Sailor's Snug Harbor
Cat I.
Town River Bay
QUINCY VILLAGE
Germantown
Weymouth Fore River
Weymouth Ct. Hill
Old Spain
Ruggles Ct.
Braintree Neck
Newcomb's Landing
Grape I.
Upper Neck
Eastern Neck
Lower Neck
Weymouth Back River
Broad
Lovells I.
Black Rock Channel
George's
Gallops I.
Nick's Rock
Scituate Ledge
Bakers Mare
Ragged Ledge
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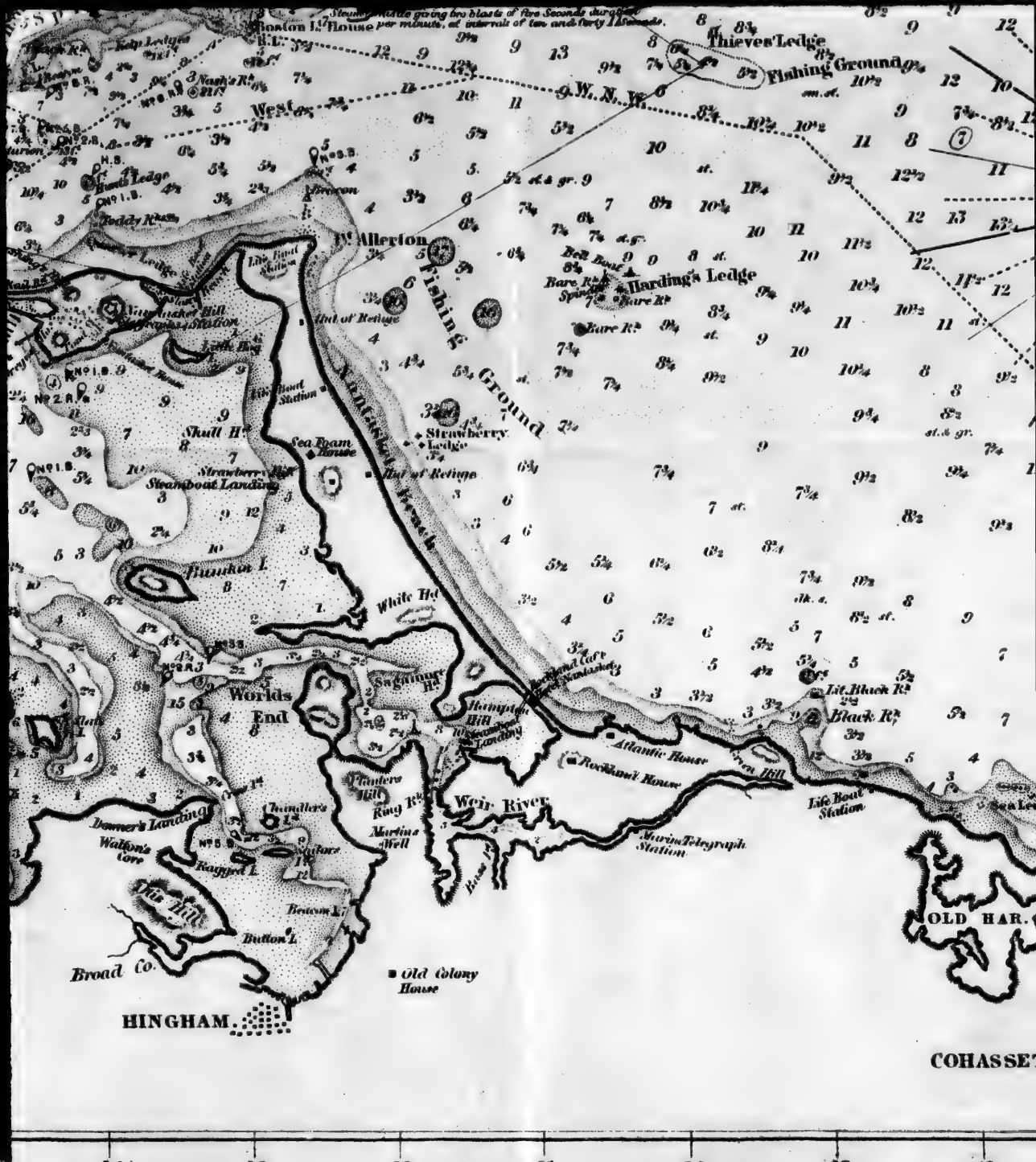
Boston Light House
Thieves Ledge
Fishing Ground
W.N.W.
West
Toddy Rock
Broad Ledge
Mt Allerton
Fishing Ground
Harding's Ledge
Bell Boat
Bare Rk
Life Boat Station
Mt of Refuge
Nantasket Beach
Strawberry Ledge
Sea Foam House
Strawberry Hill
Steamboat Landing
Skull Hill
Bumkin I.
White Hd
Worlds End
Sagamore Hill
Hampden Hill
Steamboat Landing
Lit. Black Rk
Black Rk
Atlantic House
Rockland House
Weir River
Life Boat Station
Marine Telegraph Station
Thimble Hill
Ragg Rk
Martins Well
Dunner's Landing
Chandler's
Walton's Cove
Ragged I.
Beacon I.
Button I.
Broad Co.
Old Colony House
HINGHAM.
OLD HAR.
COHASSET
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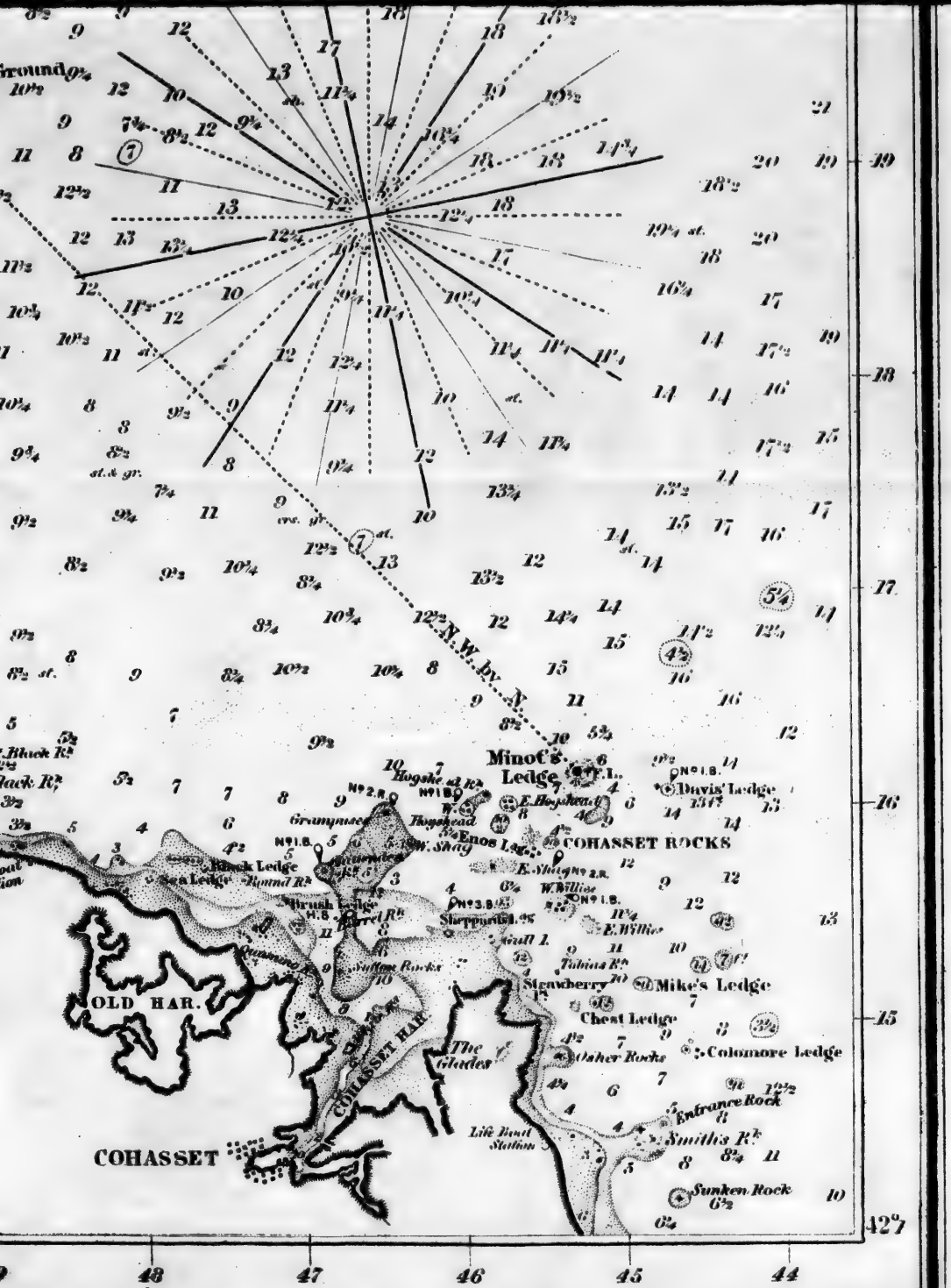
Minot's Ledge
COHASSET ROCKS
Davis' Ledge
Mike's Ledge
Colomore Ledge
Chest Ledge
Strawberry
Enos Ledge
Black Ledge
Sea Ledge
Brush Ledge
Grampuses
Hugshead
Sharp Rocks
Sutton Rocks
Fishing Rks
Entrance Rock
Smiths Rk
Sunken Rock
Otsher Rocks
The Glades
Life Boat Station
OLD HAR.
COHASSET HAR.
COHASSET
N.W. by N.
Ground
Black Rk
Jack Rk
Round Rks
Barrel Rk
Sharp Rks
Small I.
E. Boyshead
E. Shag
W. Shag
E. Willies
W. Willies
No 1 B.
No 2 R.
No 3 B.
No 1 L.
No 2 R.
No 1 B.
No 1 L.
No 1 B.
No 2 R.
No 1 B.
st.
gr.
st. & gr.
crs. gr.
sh.
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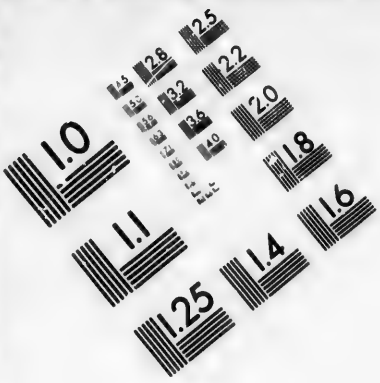
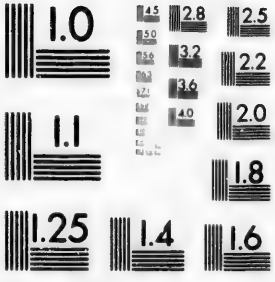
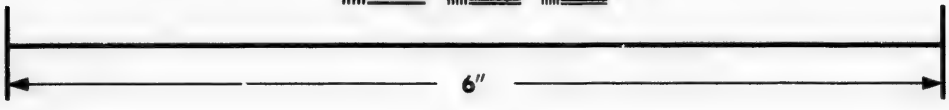
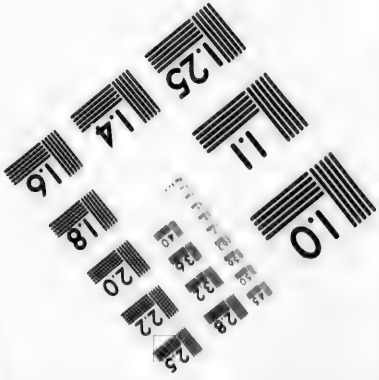


IMAGE EVALUATION TEST TARGET (MT-3)







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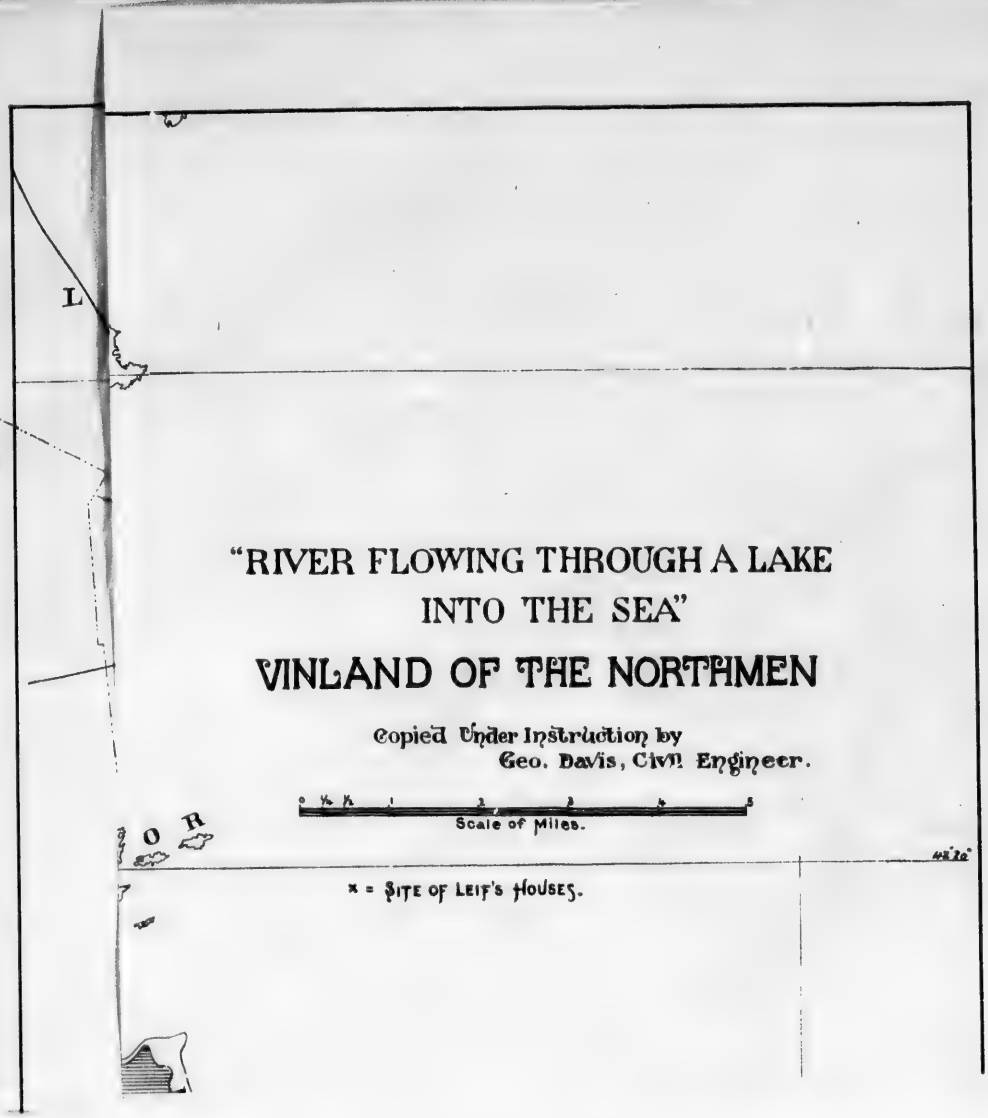
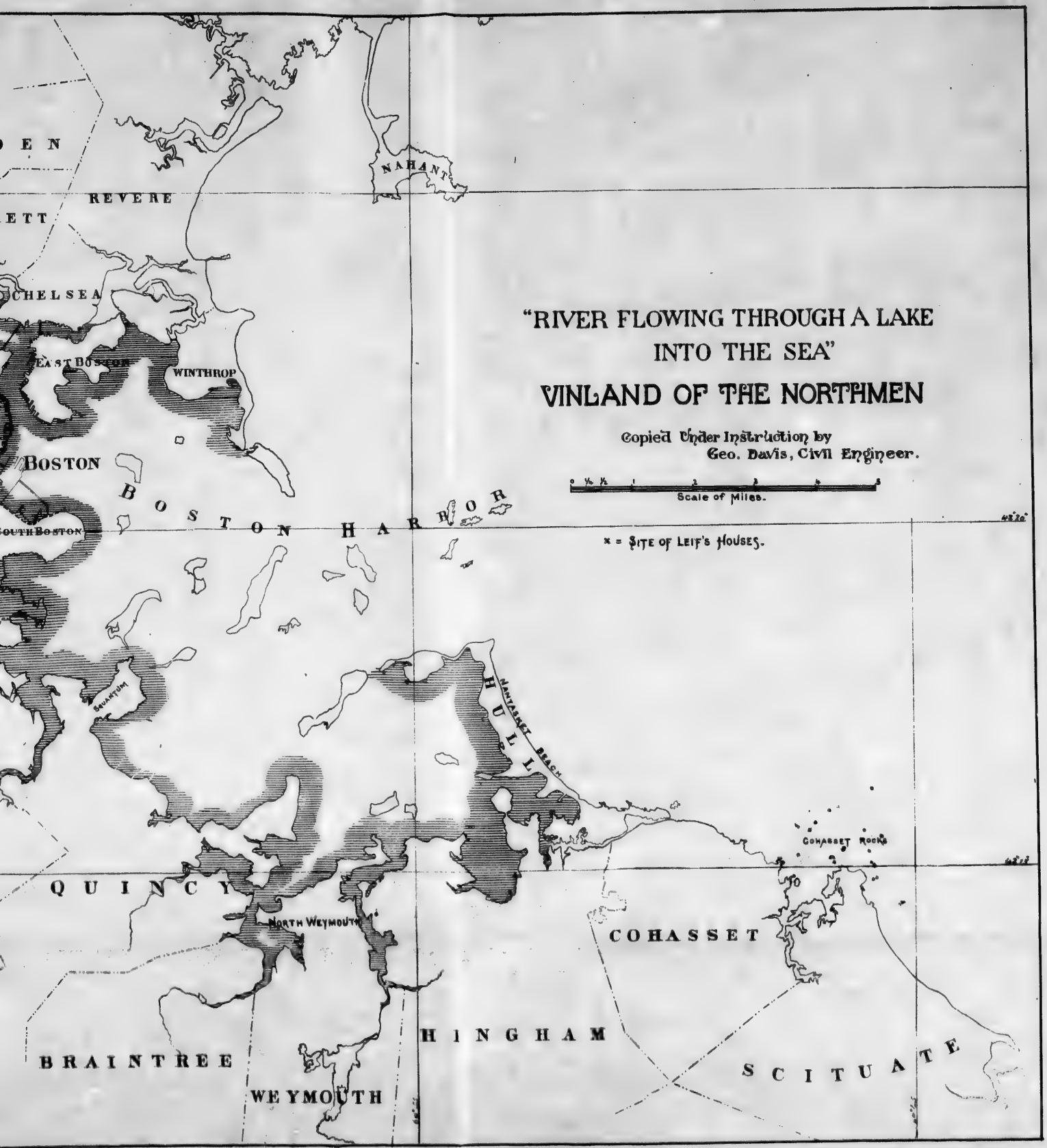

L
"RIVER FLOWING THROUGH A LAKE
INTO THE SEA"
VINLAND OF THE NORTHMEN
Copied Under Instruction by
Geo. Davis, Civil Engineer.
Scale of Miles.
O R
× = SITE OF LEIF'S HOUSES.

LINCOLN
MEDFORD
MALDEN
MYSTIC
RIVER
EVERETT
CHELSEA
SOMERVILLE
CAMBRIDGE
EAST BOSTON
WALTHAM
WATERTOWN
CHARLES
RIVER
BRIGHTON
BOSTON
SOUTH BOSTON
WESTON
NEWTON
ROXBURY
BROOKLINE
DORCHESTER
NEEDHAM
WEST
ROXBURY
HYDE
PARK
QUINCY
DEDHAM
MILTON
BRAINTREE
BOOM DAM
MAIN ST.
BELMONT ST.
CONCORD AV.
FRESH POND
NORTH BRANCH
CHARLES RIVER
ARSENAL ST.
LOWER FALLS
UPPER FALLS
NEPONSETT RIVER
QUANTUM


"RIVER FLOWING THROUGH A LAKE INTO THE SEA"
VINLAND OF THE NORTHMEN
Copied Under Instruction by
Geo. Davis, Civil Engineer.
Scale of Miles.
x = Site of Leif's Houses.
NAHANT
REVERE
CHELSEA
EAST BOSTON
WINTHROP
BOSTON
BOSTON HARBOR
SOUTH BOSTON
QUINCY
NORTH WEYMOUTH
HULL
NANTASKET BEACH
COHASSET ROCKS
COHASSET
HINGHAM
BRAINTREE
WEYMOUTH
SCITUATE

With the return of the tide they rowed to the ship. They floated up the river on the flood into the lake, and there cast anchor.

Except at high tide the vessel (it was a merchant-ship) could not enter the Charles near and below the Brookline Bridge. Thorfinn states this later of his vessel.

There is no practicable landing-place going up the river between the Back Bay proper and Symonds's hill, near Gerry's Landing, — against the foot of Appleton Street, Cambridge.[1]

"They brought up from the ship their skin cots, and made booths. After this they took counsel together, resolved to remain for the winter, and built there large houses."

THORWALD'S EXPEDITION TO VINELAND.

Exploration of Charles River westward from Leif's Houses by Thorwald's Men.

"Now Thorwald [A. D. 1002] made ready for his voyage with thirty men, after consulting with his brother Leif. They rigged their ship and put to sea. Nothing is related of this expedition until they came to Vineland, to the booths put up by Leif, where they secured the ship and tackle, and remained quietly all winter and lived by fishing." Thorwald mentions the abundance and size of the salmon. I have a salmon-sinker of stone picked up on the bank of the Charles, near the site of Leif's houses, and I have seen and photographed four others found within a short distance of the memorial terrace in front of Professor Longfellow's house.

"In spring Thorwald ordered the vessel to be rigged, and that some men should proceed in the long-boat westward along the coast, and explore it during the summer. They thought the country beautiful and well wooded, the distance small between the forest and the sea, and the strand full of white sand. There were also many islands and very shallow water. They found no abode for man or beast; but upon an island far toward the west

[1] See map of the "river flowing through a lake to the sea."

they found a corn-barn constructed of wood. They found no other trace of human work, and came back in autumn to Leif's houses."

This was the first exploration of Charles River by Northmen of which we have record.

"They thought the country beautiful and well wooded, the distance small between the forest and the sea;" that is, as far as tide-water extended, the margin of meadow was narrow, and the upland covered with beautiful forest. This very well describes the narrow strip of meadow between the rise of land on either side and the immediate bank of the river, as far as Watertown, — the head of tide-water.

"The strand was white sand," as contrasted with the black mud of the meadows along the margin of tide-water. "There were also many islands and very shallow water."

There are several islands in the expansion of the river between the Arsenal and the higher lands, about a mile below the Watertown dam. There are also occasional islands between Watertown and Waltham. From these to the bridge below the Boston and Albany Crossing there is the group of many islands, a cluster of summits of ancient moraines against Fort Norumbega. Several of these are now but three or four feet out of water, as those opposite the mouth of Stony Brook. There may have been more before the erection of the dam of some ten feet at Waltham. There are many islands above the Boston and Albany Crossing, at Wellesley and Needham, and in Medway, and one in Winthrop's pond in Holliston.

The shallows alternate with still water throughout the whole distance; they are the sites for mills and manufacturing establishments along the river, for some thirty miles or more.

The single wooden corn-barn observed on an island "far towards the west" points to the growth of the grain, and perhaps to the prudence of the natives, in securing the corn against squirrels or other rodents by a belt of water. There are extensive plains in Millis and Medway and Holliston, along the shores of the Charles and Bogasto (Norse, *Borgar-sto?*). Throughout this plateau corn is now a regular and successful crop, and

here I saw in 1889 the loft of a barn filled with cornstalks intended for fodder for the cattle.

The description of the Charles River in the few sentences quoted might challenge in its completeness any effort of a surveyor or engineer of to-day. Thevet wrote of it as "one of the most beautiful rivers in the world." To him it bore the Iroquois name of Agoncy (or Agguncia); and he and Allefonsce knew it as the Norímbega and Norombergue, and it was known before and after that as the Rio Grande, a name given by the Portuguese navigators (Ruysch's map) as already mentioned.

Exploration of Coast Northward and Eastward from Mouth of Charles River, by Thorwald.

The next summer (1004) Thorwald, with a portion of his company, in the great ship coasted along the eastern shore, and in passing round the land to the northward encountered a violent storm. They were driven by

the storm against a neck of land, and the keel was broken off.[1] Here they remained for some time, while they renewed their keel.[2] Then Thorwald said to his companions: "Now let us fix up the old keel on this neck of

[1] The accompanying cut, from Du Chaillu's "Viking Age," shows how the keel was attached, and how it might be wrenched off, and the necessity of being able to get *under* the hull to make repairs.

[2] Thorwald and his men set up the broken keel on a sandy cape, and called it Kjalarnes; and Thorfinn found an old keel set up in the sand on a sandy cape. The sandy cape was not far from

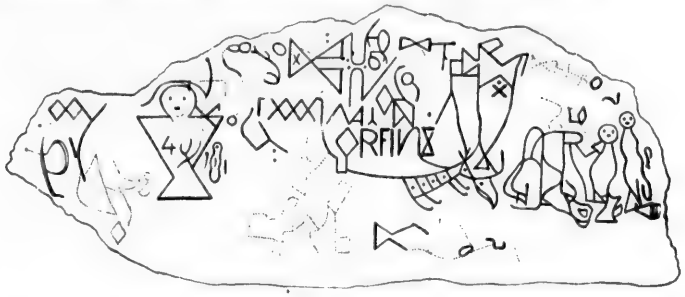
land, and let us call the place Kjalarnes "[1] (promontory of the keel, or keel promontory). This was their first promontory, as we shall later see, — the Promontorium Vinlandiæ of Stephanius's map.

the promontory familiar to them all as shown in the Saga, and not far from where in turn Leif, Thorwald, Thorfinn, and Freydis had dwelt in Leif's houses on the shore of a "lake through which a river flowed from the land and passed into the sea." This was the Hóp of Thorfinn, defined to be a "small landlocked bay, salt at flood-tide and fresh at ebb." Such a Hóp lies at the northwest of the Cape Cod of Gosnold, within a distance of forty miles. The convex coast of Furdustrand, — the Promontorium Vinlandiæ of the map of Stephanius, with its deep bay on the west, — like our Cape Cod and Cape Cod Bay, which we recognize to be the only great headland and bay on our coast looking northward with clear expanse to Newfoundland, will find place for discussion on other pages. On the titlepage I have placed a picture of a legendary cut. It is of a small tablet, a few inches in length, of which a photograph, procured by Mr. Andrew K. Ober of Beverly, lies before me. It was taken, some years since, from a grave in Essex County, about forty miles from Cape Cod across Massachusetts Bay; and a sketch of it with the date has been preserved by Professor Putnam of the Peabody Museum. With it were other articles, as a circular brass shield and remains of an iron axe. The tablet may suggest — pictorially — the story of Thorwald's keel, with its curved end set up in the sand. And with this hint one has an idea, as one studies the lines, of the method by which the wrecked vessel was disposed in a cradle and transported on a railway with skids up the slope of the neck into position for repairs.

The tablet seems to suggest a considerable line of movement, and a change in its direction before launching. The large Coast Survey map, assuming the wreck to have occurred on the neck between the Race light and the bulbous end of the cape looking southward, will help the student to form a conception of the course pursued in the extemporized shipyard nine hundred years ago.

The cut introduced from Du Chaillu will illustrate how the keel was attached.

It is not without interest that something like this picture, including especially the *elevation*, and a suggestion of oarsmen (the dots stand in early Icelandic for units, and here possibly for units of oarsmen), exists in the centre of the inscription on Dighton Rock. This part has been pronounced by



an accomplished expert (see Schoolcraft), familiar with the meaning of Indian characters, not to be of Indian origin, while all the rest is the work of Indians.

[1] Danish, *naes;* Swedish, *nas;* Anglo-Saxon, *naes*. *Ness* is modern English.

SSACHUSETTS

Scale 4nhoo

1875

to Navigation corrected to 1885

the Superintendent and Capt T.J.Cram U.S.A. 1845 and 1849
e R.M.Bache A.M.Harrison and P.C.F.Wet 1851 and 1866
ently H.Mendhall H.S.Stellwagen U.S.N. and between 1853 and 1870

177 C.P.PATTERSON Superintendent
(K.Helgrad Assistant in charge of Office

DUXBURY

DUXBURY BAY

KINGSTON BAY

KINGSTON

Clarks Island

Saquish Head

Plymouth Duxbury Cable

Brown's Bank

Plum Island

High Cliff

Gurnet Pt.

Holmes Pt.

Powers Pt.

WARREN'S COVE

Ipswich Bay

Plymouth Bay

High Pine Ledge

Duxbury Pier

Plymouth Duxbury Cable

s are given in Mean Low Water

Plymouth Duxbury

dian passage 2nd 2nd

me of reference 9.30. 11.40.

do. Average 10.0.

do. do. 0.7.

do. do. 8.6.

do. do. 0.7.

do. do. 11.5. 12.9.

do. do. 1.5. 0.7.

Smith says of Thorwald (page 112): "Having done as he desired [set up the old keel], they sailed along the coast, leaving that neck to the eastward,[1] and entered the mouths of the neighboring bays, until they came to a certain promontory which was covered with wood," — the Gurnet. It was larger formerly. The mass of bowlders extending out from its base show that the bluff has worn away, especially on the east side. "Here they cast anchor and prepared to land; and Thorwald and all his companions went on shore. Then said Thorwald, 'This is a pleasant place, and here I should like to fix my habitation,'" — "my farm," Laing; "my abode," De Costa; "my dwelling," Beamish; "my dwellings," Cabot; "my home," Arngrimsson.

[1] Over this passage much thought has been expended. Beamish says: "After that they sailed away around the eastern shores of the land and into the mouths of the friths which lay nearest thereto, and to a point of land which stretched out and was covered all over with wood." Arngrimsson says, "eastward off the shore." (See Appendix.) If the vessel sailed around the island and cape, eastward, and then southward along the east face of the peninsula of Cape Cod, it would come to Nauset (Norse, *Naes;* and Algonquin, *et*, — near the Cape) headland and harbor and strait, open to Captain Southack in 1717 through to Cape Cod Bay. If Thorwald went farther south, he would encounter Point Care and Point Gilbert of Dr. De Costa, — and possibly more prominent at the time of Leif than at the time of Champlain, — who gave the outline of the coast and the bays. Champlain encountered Indians, and had several fights with them. If this latter be the correct understanding of the Sagas, the place where Thorwald landed, admired the ness as a possible future home, provoked a battle, was wounded, died, and was buried, may have been in the region of Chatham, to which Thorfinn came later. This does not commend itself to me.

The uniform persuasion, in which I have shared, that Krossa-nes (the crosses at the promontory) was the Gurnet, was supported by the name C. St. Croix on the map of Vallard de Dieppe (1543). It is entitled to more study. Accepting this view, it is obvious that if Leif's Landfall coincides with Kjalarnes, Thorwald, in sailing to the westward, — that is, in leaving the neck where he had been wrecked, to his eastward, — did substantially what Leif did; that is, "he sailed through a bay." He more closely followed its shores. It follows that the "certain promontory" was approached by sailing, as a whole, westward. To Leif this promontory bore northwest and southeast. This is the second promontory observed by Leif, by Thorwald, and by Thorfinn when he went westward to Leif's houses from Kjalarnes seeking Thorhall. To Thorwald there was within this promontory a bay of sandy shores, of "shallows," in which, later, appeared an innumerable multitude of canoes. The shallows and wide beaches at low tide are there still.

This was the beginning of the promontory of the Saga of Erik the Red, "running toward the north or northeast," the promontory from beyond which Leif sailed westward, and on which Thorwald provoked the collision with the Skrælings, in which he lost his life, — the Gurnet.

The Gurnet, or Krossa-nes, or Promontory of the Crosses.[1]

This promontory has been mentioned as the burial-place of Thorwald, where he directed two crosses to be set up at his grave. It is possibly recalled in the name C. St. Croix on the map of Vallard de Dieppe of 1543. It is the first cape north of C. Arenas (Carenas, Lok's map). The same name also occurs with a little modification, possibly indicating that the names were found, not bestowed. The name C. de la Croix is also given to the south side of the entrance to the Archipelago, — usually identified as the Archipelago of Gomez, — or Boston Harbor.[2] This point is at the outer mouth of the Rio de Gamas, — one of the many names of the Rio Grande, — of the Anguileme of Verrazano, the Mishaum[3] of the Indians, the Charles. This angle suggests the form of the cross. It bore the Iroquois name of Aiayascon (the arm).[4] De Laet gives the same meaning to the word. We have retained the name in its possible Algonquin equivalent, Nantasket, attaching it to one part of the angle; and Hull, the English name, to the other. Thevet, in his Cosmography, when treating of Norumbega and Baccalaos, speaks of the *islands* St. Croix, which term may include both the modern Point Allerton and the Gurnet, where Thorwald was buried.

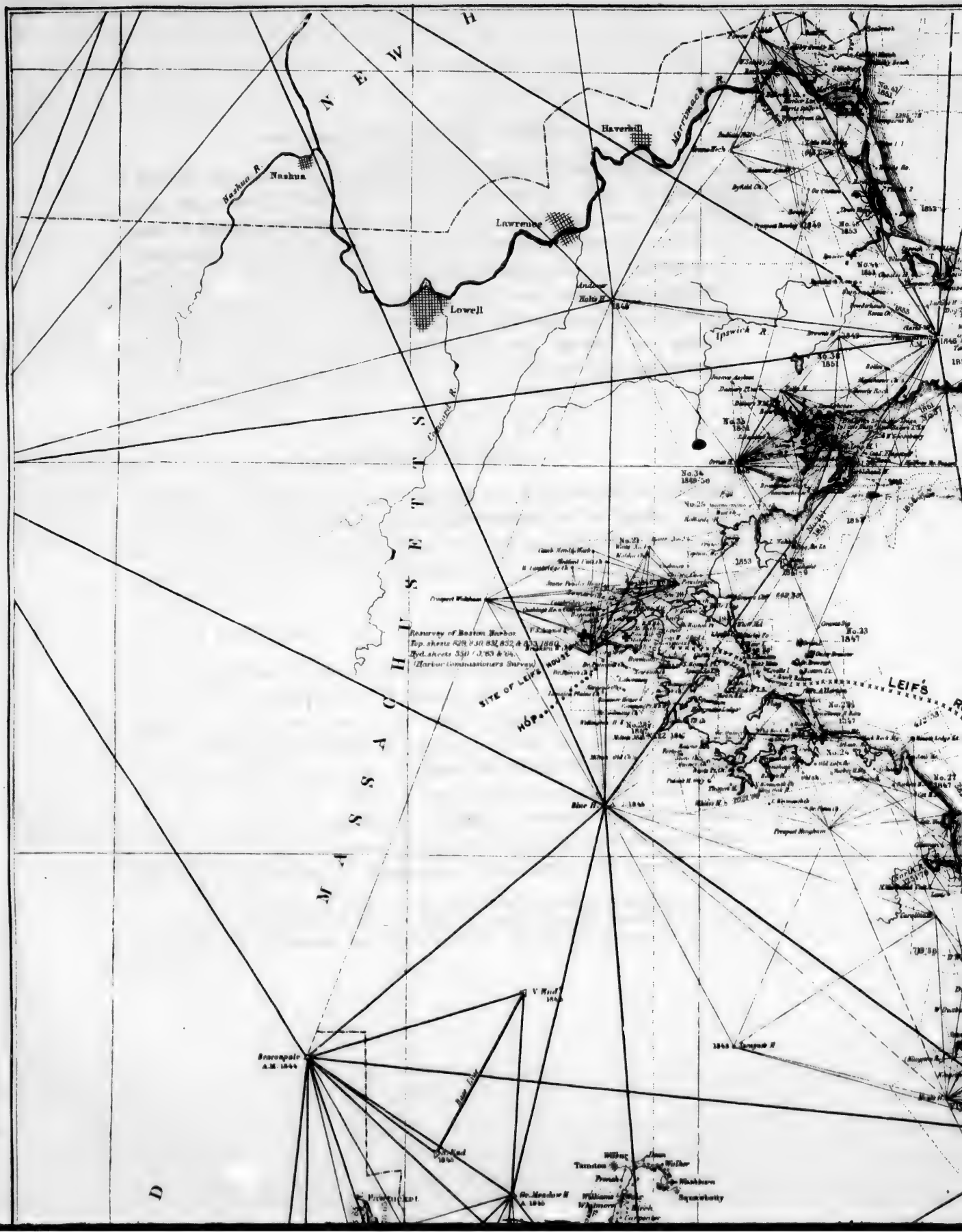
"Here they cast anchor and prepared to land; and Thorwald and all his companions went on shore." Within this promontory was a bay having a sandy shore, on which, under their overturned canoes, were Indians. These were seized and killed, with the exception of one who escaped.

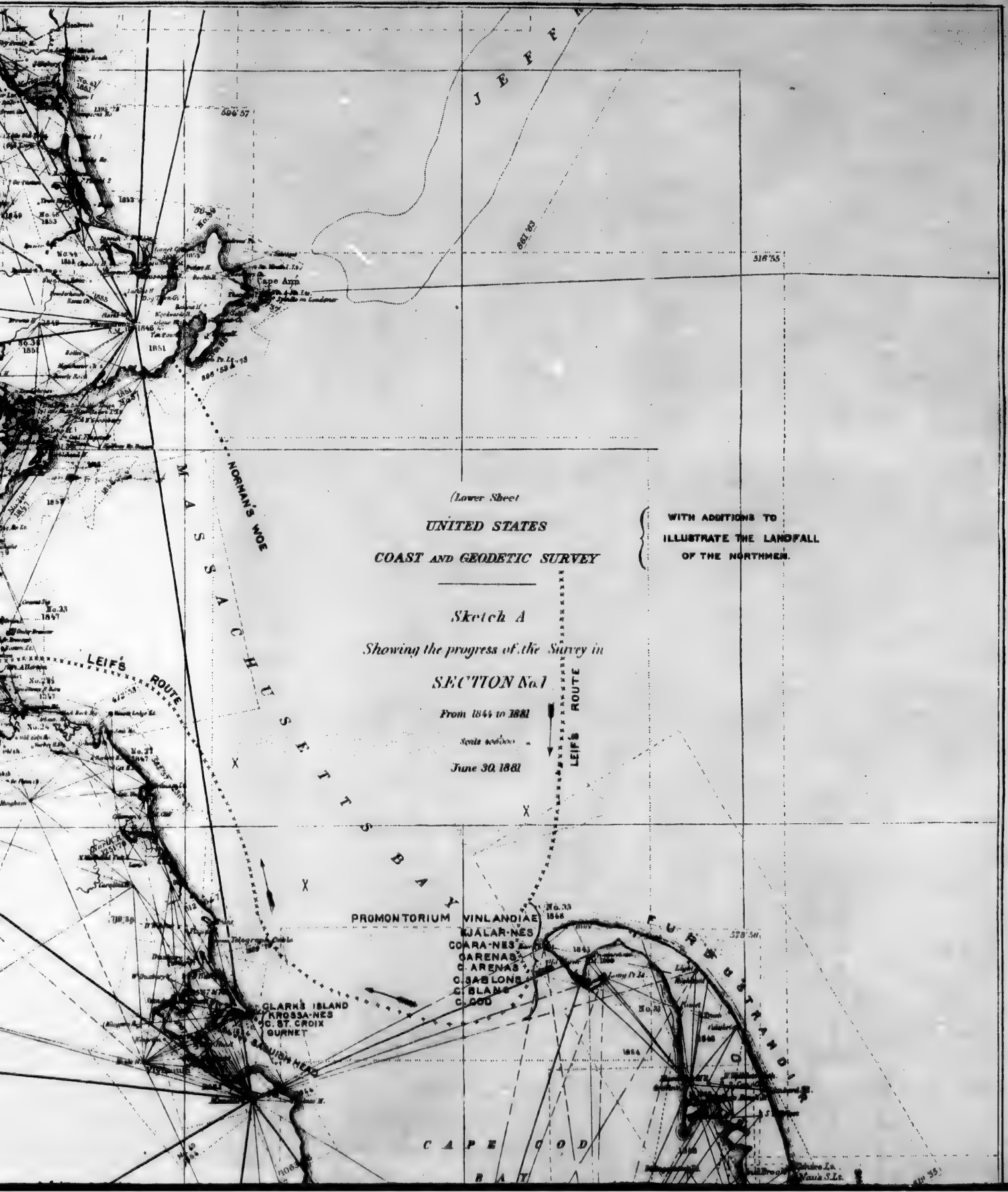
[1] In the address at the unveiling of the statue to Leif Erikson, 1887, the suggestion is made that this name, like St. Christopher and San Antonio, St. John the Baptist, Paradiso and Refugio, is possibly a heritage from Bishop Upsi, who came here in 1121, or from some of his successors, preserved by the people of mixed descent found here by the French. To the Church must also be ascribed the names Paradiso and Refugio on the maps of Gastaldi, Ruscelli, Verrazano, Ulpius's globe, and in the text of Thevet, Buno's Cluverius, and Ogilby. (See Defences of Norumbega, 1891.)

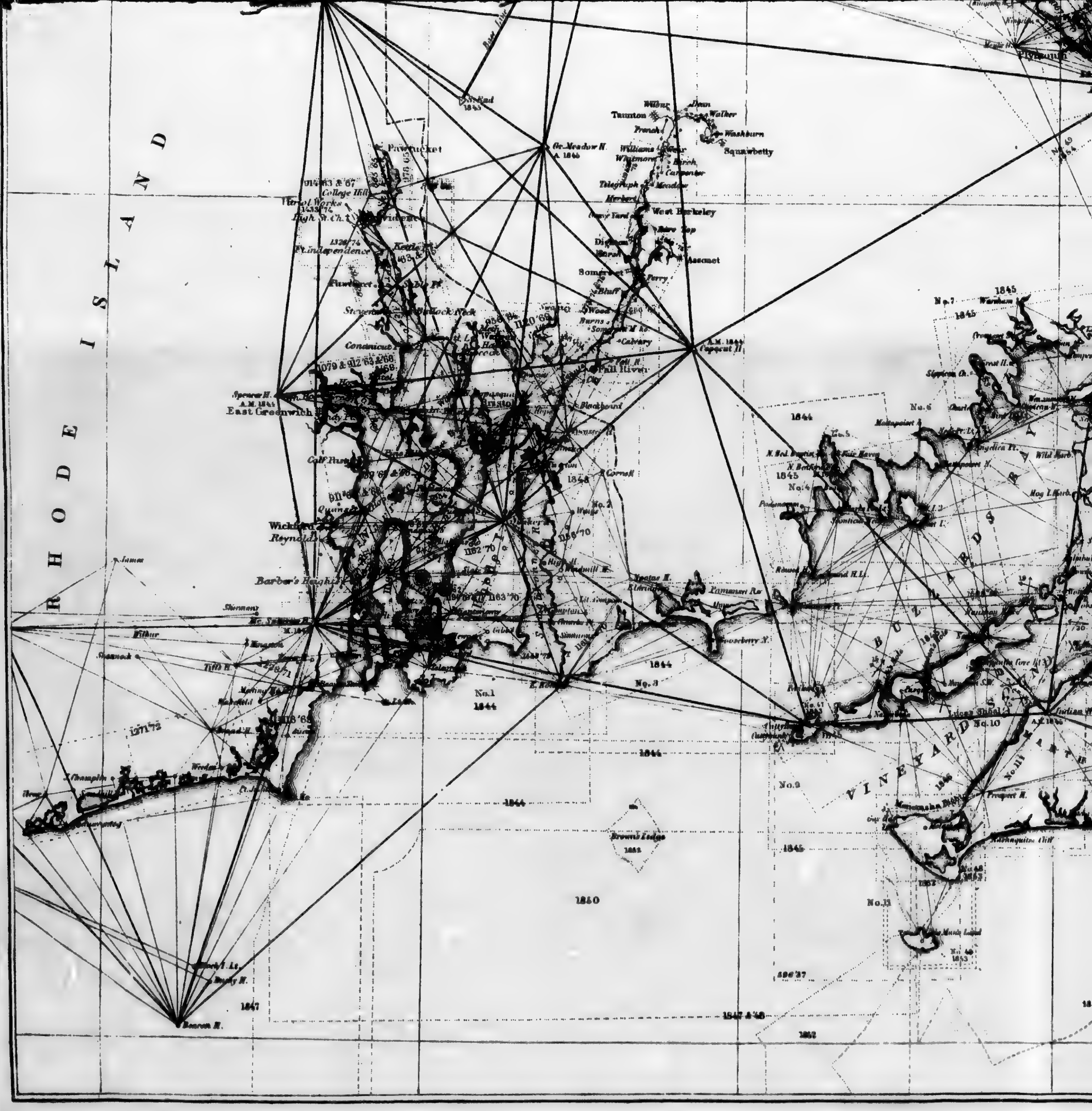
[2] The archipelago of Boston Bay and that off the coast of Maine confused the cartographers. Rio Grande appeared at several points.

[3] *Mis-sha-um*, "great parallel-sided river;" that is, Big Eel.

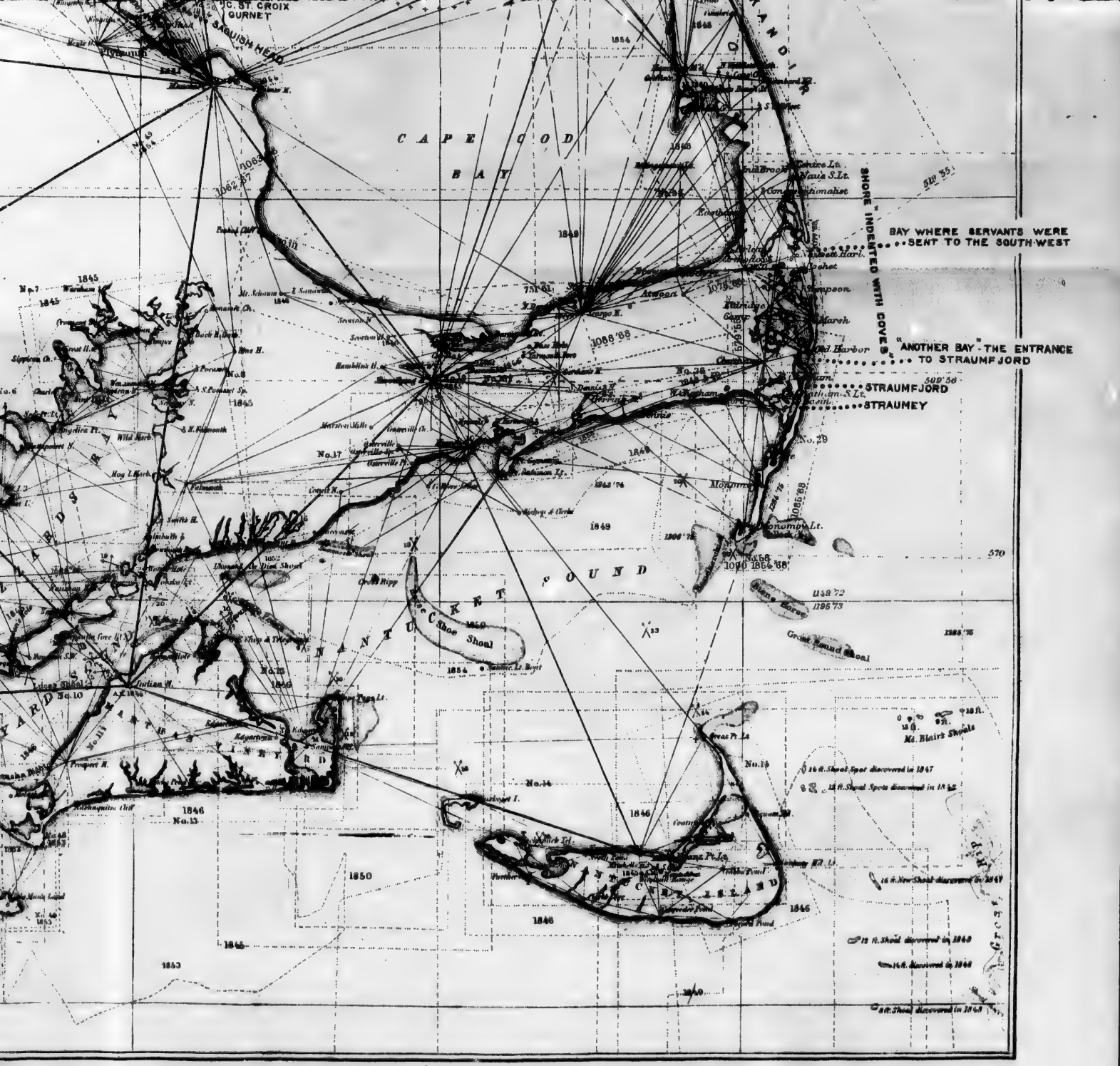
[4] Thevet, Montanus, De Laet.


N E W H
M A S S A C H U S E T T S
D
Nashua R.
Nashua
Lawrence
Haverhill
Merrimack R.
Lowell
Andover
Ipswich R.
Concord R.
Resurvey of Boston Harbor
Top. sheets 828, 830, 832, 832A & 833, 1864
Hyd. sheets 350 / 363 & 365
(Harbor Commissioners Survey)
SITE OF LEIF'S HOUSE
LEIF'S
Blue H.
Squantum
Squawbetty


(Lower Sheet
UNITED STATES
COAST AND GEODETIC SURVEY
WITH ADDITIONS TO
ILLUSTRATE THE LANDFALL
OF THE NORTHMEN.
Sketch A
Showing the progress of the Survey in
SECTION No. I
From 1844 to 1881
Scale 1/600000
June 30, 1881
LEIF'S ROUTE
LEIF'S ROUTE
NORMAN'S WOE
MASSACHUSETTS BAY
PROMONTORIUM VINLANDIAE
KJALAR-NES
COARA-NES
CARENAS
C. ARENAS
C. SABLONS
C. BLANC
C. COD
CLARKS ISLAND
KROSSA-NES
C. ST. CROIX
GURNET
CAPE COD
BAY
Cape Ann
JEFFE



RHODE ISLAND
Taunton
Squawbetty
Washburn
Walker
Pawtucket
College Hill
Gr. Meadow H.
West Berkeley
Assonet
Somerset
Pt. Independence
Copecut H.
Fall River
Bristol
East Greenwich
Wickford
Reynolds
Barber's Heights
Gooseberry N.
BUZZARDS
VINEYARD
Brown's Ledge
Wareham
1844
1845
1846
1847
1850


C. ST. CROIX
GURNET
STAGHORN HEAD
CAPE COD
BAY
SHORE INDENTED WITH COVES
BAY WHERE SERVANTS WERE SENT TO THE SOUTH-WEST
"ANOTHER BAY" THE ENTRANCE TO STRAUMFJORD
STRAUMFJORD
STRAUMEY
SOUND
NANTUCKET
Shoe Shoal
Great Round Shoal
Mt. Blair Shoals
Tuckernuck I.
Muskeget I.
Gravelly Pt.
Monomoy Pt.
Monomoy Lt.
Great Pt. Lt.
Sankaty Head
Sankaty Pt. Lt.
Gibbs Hill Lt.
Bermuda
1846
1850
1849
1845
1853

"Having returned to the promontory, they looked round and saw in the inner bay several elevations, which they considered to be habitations." Such or similar structures were seen in the same region, were figured by Champlain six hundred years later, and indicated on maps and a globe of earlier date.[1] "An innumerable multitude of canoes were seen approaching from an inner bay, by which Thorwald's party was immediately attacked." In the fight Thorwald was fatally wounded. He requested that he might be buried on the promontory. "There bury me," he said, "and place a cross at my head, and another at my feet, and call that place for evermore Krossa-nes" (Cape of Crosses).

Sailing past the Gurnet.

Careful reading will satisfy the student that it is recorded in the Sagas that all except Freydis sailed past the promontory of the Gurnet, as also did the unfortunate Thorhall, — the latter sailing only southward. All except Freydis came to Leif's houses.

The Significance of Carenas cannot be overestimated.

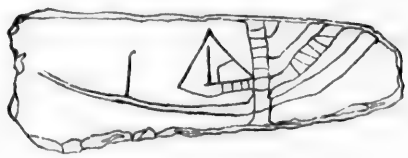
The significance of the name Carenas on the map of Michael Lok of 1582, as the probable heir of Kjalarnes, the name of the cape on which Thorwald's vessel was wrecked in 1004, greatly impressed me some years ago, as indicating the region of Vineland. Was Carenas the spot where Thorwald and his men set up in the sand the old keel that had been *broken off* when in a storm his vessel had been driven on shore? Carenas was a very simple instance of metathesis: Carenas = Karanes. On another map (Merriam?) of about the same period, and nearly against the same geographical point, occurs P. Coaranes = Promontorium Coaranes.[2] (Ice-

[1] *Lunga Villa*, on the maps of Maiollo and Hieronymus Verrazano, and the globe of Ulpius.

[2] *Kjalarnes* is the genitive of *Kjölrnes; Kjölr* is *Keel*, and *nes* is *nose*, or promontory. *Kjölrnes* as uttered by a native Icelander, and *Coaranes* by a European of lower latitude, differ but little from each other

landers to-day spell the name *Koaranes*, leaving out the *o* and accenting the *a*, and giving it an accent equivalent to *oa*.) There is also on the same map, and next in succession against the same promontory, C. de las Arenas. It is indicated both by the contour of the coast and by the geographical names for a considerable distance on either side. In the same geographical order of succession on either side — that is, *at the same point* — there are on maps of earlier and later date C. des Sablons (1543), C. de arenes (1556), C. de arenas (1569), C. de Arena, — all of the sixteenth century, and the Cape Cod of Gosnold in 1602, and C. Blanc in 1604 of Champlain. It is impossible to escape the conviction that they all belong to and qualify points on, or very near, the same geographical salient looking northward at the southern limit from the forty-third degree. This is our Cape Cod.

How obvious is the thread of white sand running through these names from the Kjölrnes of 1000 to the Cap Blanc of 1604–1612–1632! The promontory to which it applies is stamped on the map of Stephanius, deduced mainly from the Vineland Sagas, and continued down to the Coast Survey map of to-day.



RUINS OF ERIK'S HOUSE WHERE THORFINN AND GUDRID WERE MARRIED. (From Second German North Pole Expedition. Cronan, *Discovery of America*).

SKETCH

OF

THE THORFINN EXPEDITION TO VINELAND.

IN this enterprise three or more ships took part, and altogether not less than one hundred and sixty persons, of whom at least seven were women. They were provided with supplies of cattle and whatever else might be needed for settlement in a new country.

Thorfinn Karlsefni, with his wife Gudrid and their companions, embarked on the ship in which Thorfinn came to Greenland the year before. Snorri Thorbrandson went with his own ship and company. Bjarni Grimolfson and Thorhall Gamlason sailed in the ship that brought Thorbiorn to Greenland. Among the women besides Gudrid, the wife of Thorfinn, was Freydis, the half-sister of Lief, the wife of Thorvard.

These vessels sailed southwest from Eiriksfjörd,[1] Greenland, in the spring of 1007, and arrived in the neighborhood of Boston in the latter part of May, soon after the time of corn-planting, — the spawning-season; that is, the time when the fish go up the rivers and smaller streams, to

[1] The modern Igaliko Fjord. See Nordenskjöld's Den andra Dicksonska expedition en till Grönland.

deposit their spawn where their eggs have greater chance of protection at the time of hatching.

The fleet — perhaps not including Thorhall's ship — remained in port for two months, during which time Leif's houses, lent to Thorfinn were surrounded by a stockade for the greater safety of Gudrid and her household. Here Gudrid and Bjarni and a hundred men remained; while Thorfinn and Thorhall, with two vessels, went southeastward to Kjalarnes and Straumfjörd (Cape Cod and Chatham). Corn was now in the ear. After a short stay, Thorhall, who desired to explore Vineland, sailed northward round the outside of the cape, but when he turned westward was blown out to sea and lost. Thorfinn went to seek him; but not finding him after long search, returned to the site of Leif's houses. Let us proceed more in detail.

The events of the Thorfinn Sagas group themselves under two heads.

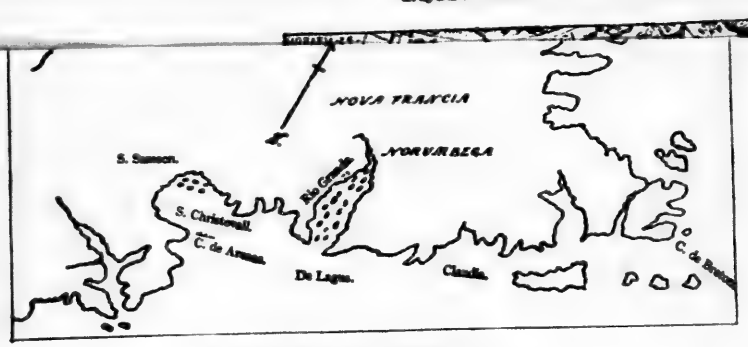
Under the first head fall the discovery of the two harbors on the outside of Cape Cod; the three days' tour of the Irish[1] servants; the story of the long narrow island of Straumey, of which the present Monomoy is the southern extension; the story of the narrow strait (Straumfjörd) between the Straumey and the mainland at Chatham, of the countless ducks' eggs, and of the Wunderstrand (or the Furdustrand, so called), the convex sandy shore, — so wearisome is the pursuit of a vanishing horizon, along a curve of constantly increasing radius, to Nauset Harbor![2]

[1] Irish and Scot were the same.

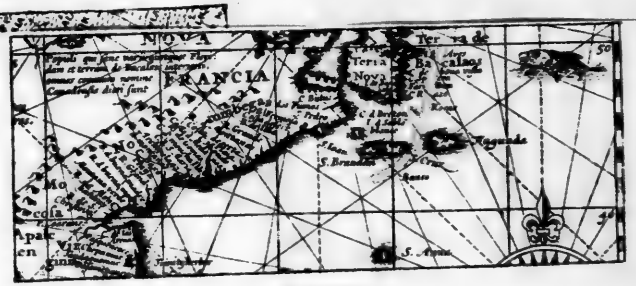
[2] Thorfinn's Saga mentions going south along the Furdustrand, and says it was *wonderful*, because it seemed *so long* to sail past it. It was curved.

The Saga says, "THERE BEGAN TO BE COVES." A glance at the detailed Coast Survey map of Cape Cod peninsula will reveal the condition that must have prevailed. In still earlier times the whole salient was a cluster of detached moraines. These gradually coalesced under the influences of winds, waves, tides, and the Arctic current. Once Pamet River must have been a strait. The eastern end of the valley must have been open to the sea. The swamps and ponds farther south with scattered dunes show that there were numerous coves between Pamet River and the present entrance to Nauset Harbor. Champlain's maps and Gosnold's relations, to which Dr. De Costa has called attention, show that the present prolonged continuous beach is relatively modern. It is obvious that there must have been coves in Thorfinn's time.

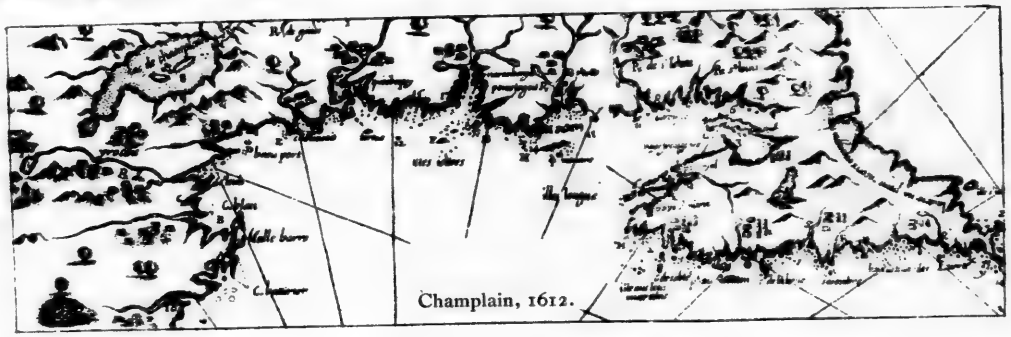
EQUIVALENTS OF THE RIVER CHARLES.



From the Molineaux Globe, 1592.



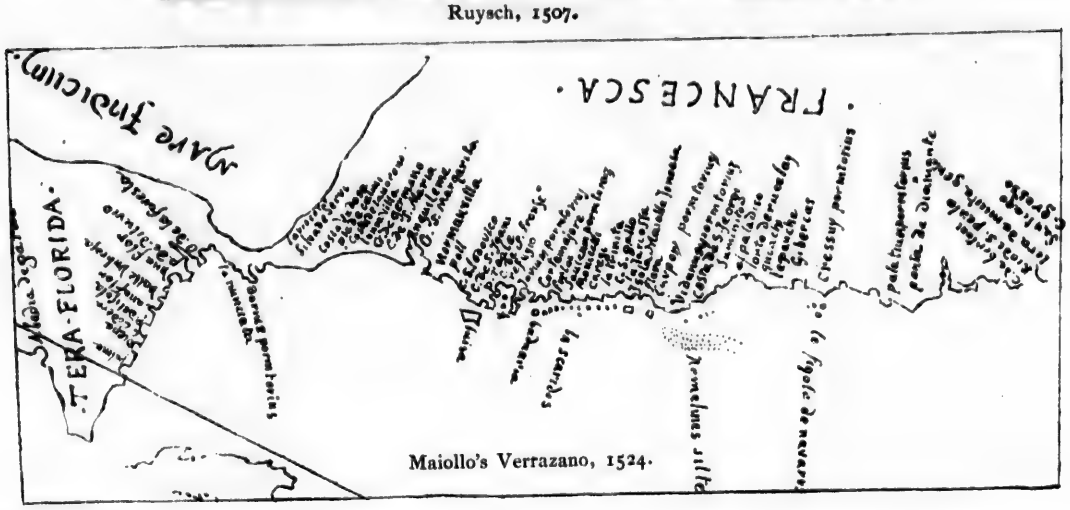
Merriam.



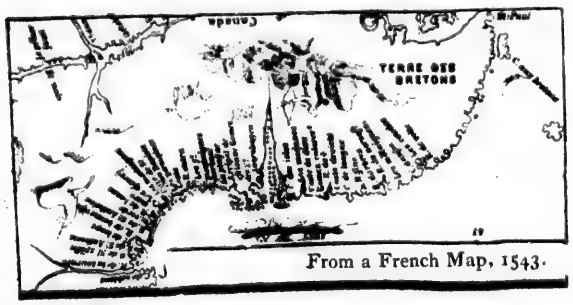
Champlain, 1612.

Winthrop, 1634.

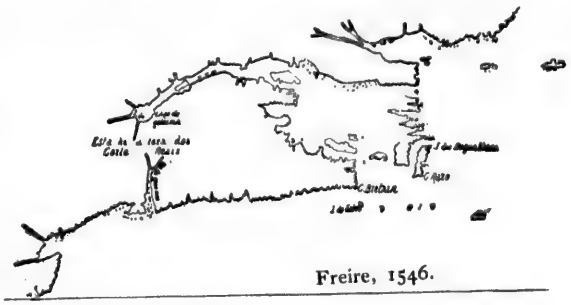
Ruysch, 1507.



Maiollo's Verrazano, 1524.



From a French Map, 1543.

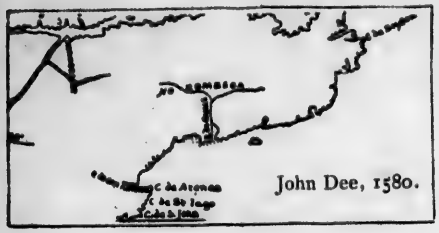


Freire, 1546.

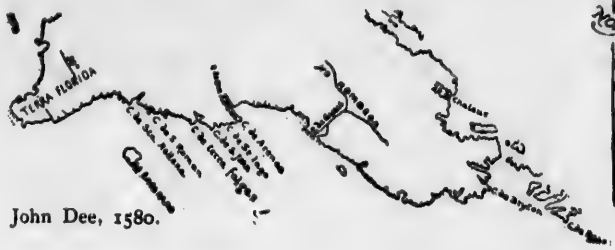
Tracing of Wm. de Testie, by Rev. Dr. de Costa.

Gerard Mercator's Map, made in Duisburg in 1569.

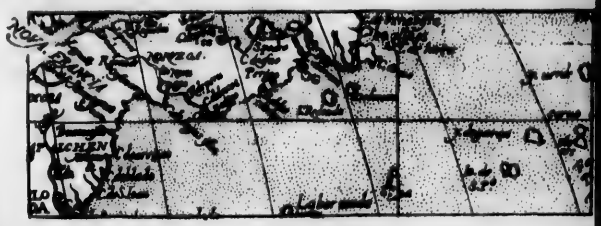
Wytfliet, 1597.



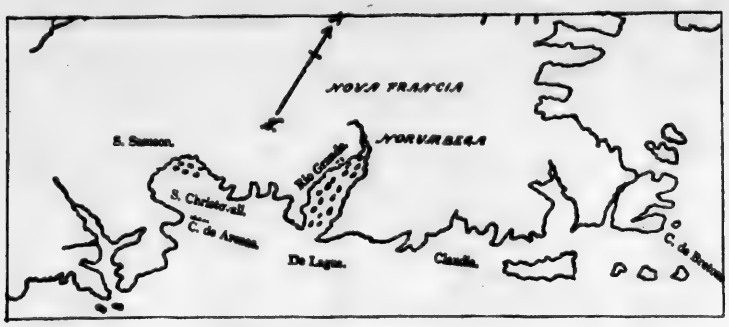
John Dee, 1580.



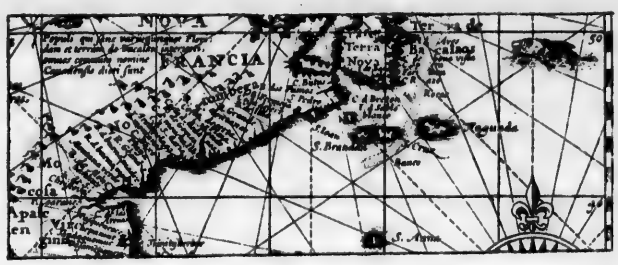
John Dee, 1580.



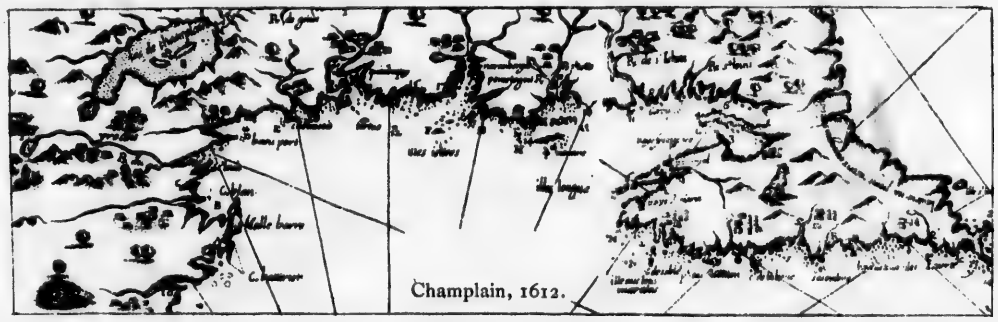
Solis, 1598.



From the Molineaux Globe, 1592.

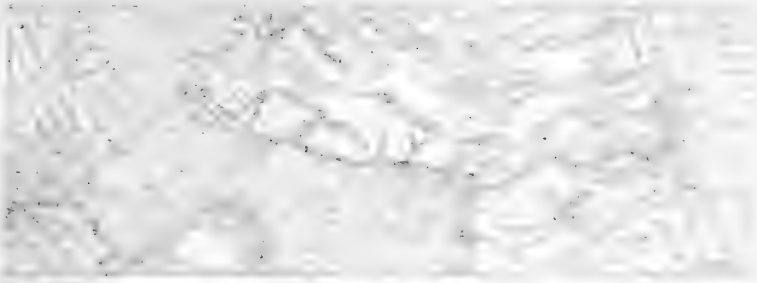


Merriam.



Champlain, 1612.

Winthrop, 1634. &c.



Under the second head falls the determination of the site of Leif's houses.

The vessel in which Gudrid sailed with Thorfinn Karlsefni, her husband, carried sixty men and five women. They sailed long, until they came to a river which flowed through a lake and passed into the sea. Before the mouth of the river were great islands. They passed up into the lake. Karlsefni sailed through the lake as far as the mouth of the river (above), and called the place Hóp. They found sandy shoals there, so that they could not pass up the river except at high tide. Having entered its mouth, they cast anchor, and took possession of Leif's houses, landing their cattle and stores. The other vessels probably stopped for a time in the neighborhood, possibly at anchor in Boston Harbor or in the Back Bay.

They had arrived at Vineland possibly in May or early June (the time of early corn-plants), and had remained here some two months, erecting additional houses, — some nearer, others farther from the water, — and enclosed some of them in a stockade. It was here (later) that Snorri (son of Thorfinn and Gudrid) was born. They observed Indian corn, *newly* sown, — that is, when the recently planted corn had just appeared above the ground, and was of course without tassels or ears, — growing wild on lowlands; and vines (the Saga does not say *grapes;* it was too early) on the uplands. Fish were found in all the rivers. They dug pits for them at the margin of extreme high tide, and where the land was highest, to catch them in the spawning-season.

Expedition to Straumfjörd.

Some two months after arriving in Vineland, two vessels at least — one under Thorhall, and the other having Thorfinn on board — sailed away around Cohasset and along the Scituate beach, and across the mouth of Cape Cod Bay to Kjalarnes, where, leaving on their right the old keel set up by Thorwald, they sailed along the outer, convex shore of Cape Cod, wondering at the retreat of the horizon as they went southward.

Thorfinn gave to it the descriptive name of "Wunderstrand," or "Furdustrand." At length they came to where the shore was indented with coves.[1] Here they anchored, and sent out two Scotch servants,[2] directing them to run for three days to the southwest, and report what they saw. On their return one brought a bunch of grapes, and the other a white ear-of-corn. Two months before, they had seen corn in an earlier stage (recently planted), and vines, *not* grapes. Now they saw corn white in the ear,[3] and the fruit of the vine,—a bunch of grapes. (Both were unripe.)

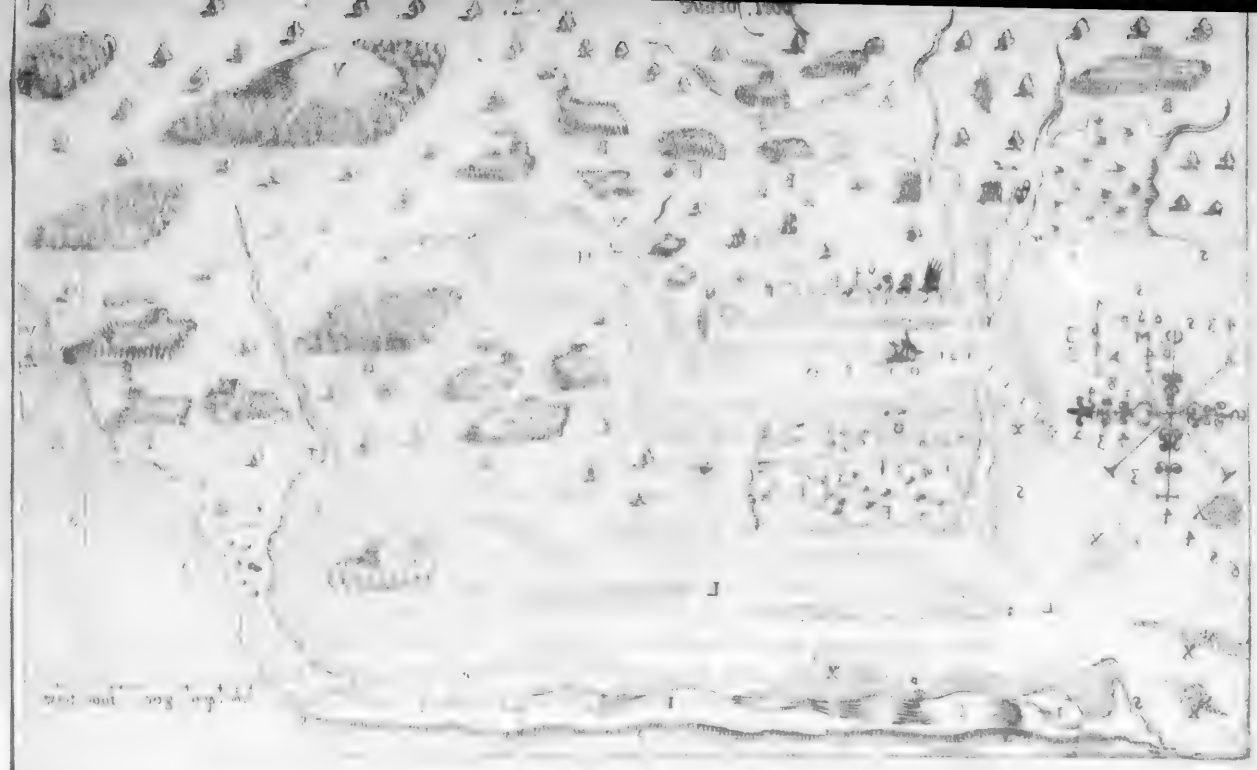
Thorhall and Thorfinn sailed farther, coming to another bay. Against it was an island, which Thorfinn described as the resort, at nesting-time, of innumerable sea-fowl, and called it Straumey,—Straumö. They steered the ship into a long bay between the island and the mainland. The island was narrow and long, having little or no indentations, as may be inferred, since the explorers could at the same time observe the strong tide on the outside of the island and that in the channel between the island and the mainland. This was the Straumfjörd. Thorfinn described the long bay, or channel, in the name "Straumfjörd." It lay against the present Chatham; it lies there now. This was the limit of Thorfinn's explorations to the south. Stephanius says the Northmen did not go south of Promontorium Vinlandiæ (Cape Cod, the Peninsula).

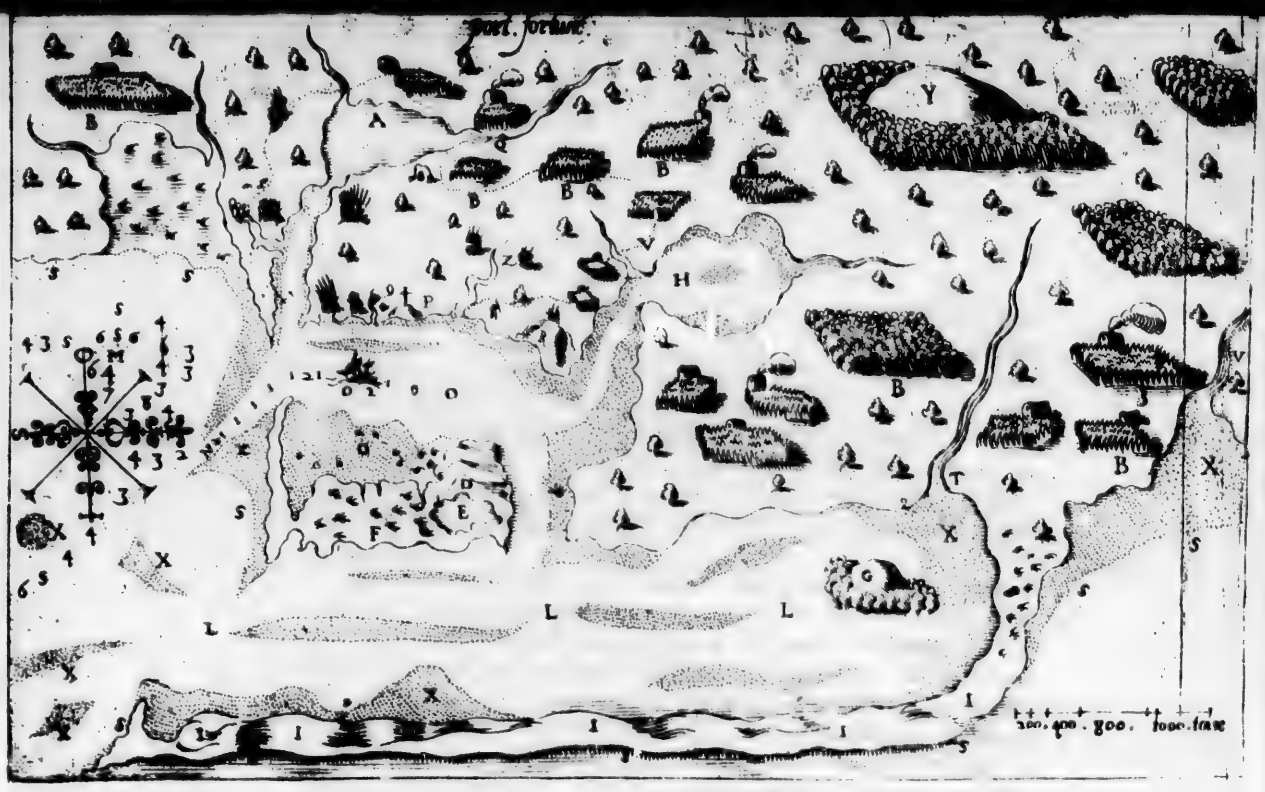
Thorhall, weary of the hard fare, and desiring to go back and explore Vineland, sailed northward along the convex beach of Furdustrand, or Wunderstrand, round Kjalarnes (the Cape of the Keel), and would have sailed westward to Vineland, but was blown out to sea. He had with him nine men, all the others preferring to stay with Thorfinn.

[1] Champlain, in 1604–5, observed bays and figured them. The expression "indented with coves" may refer to the condition of things before the moraines had coalesced to their present state.

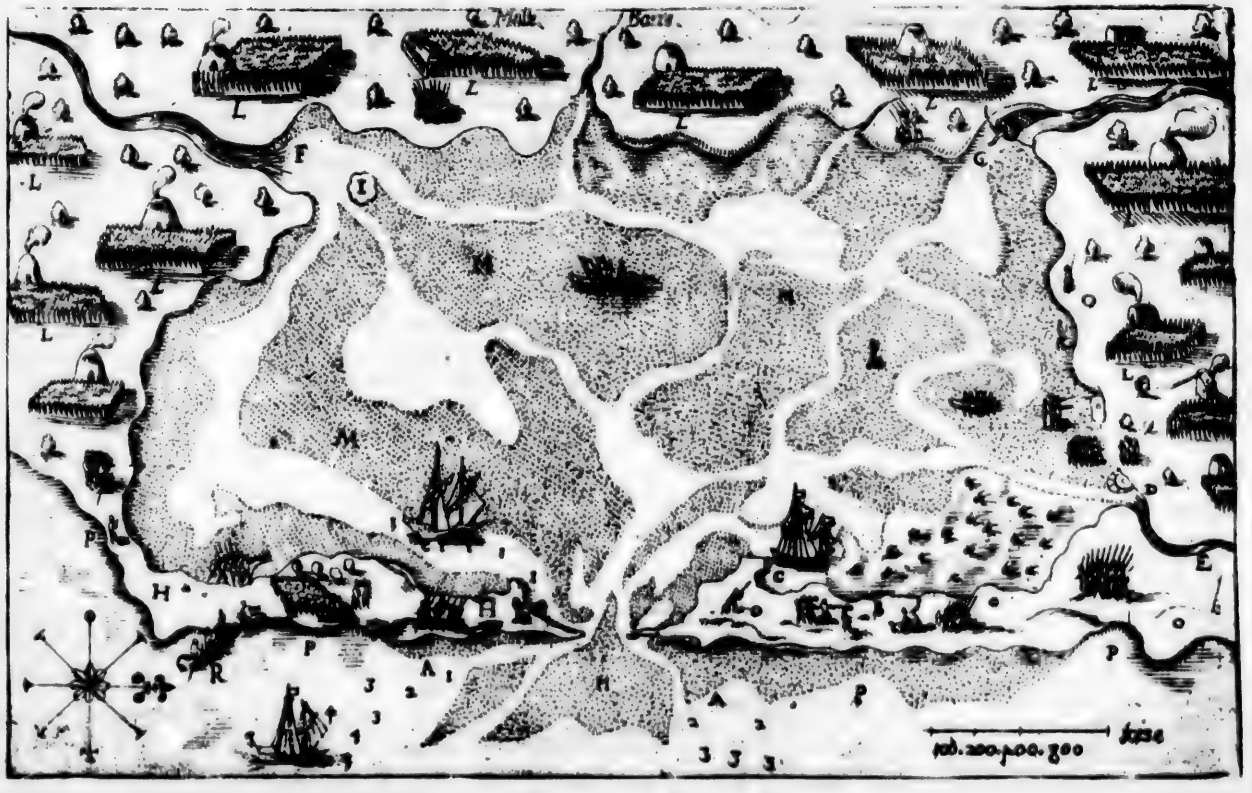
[2] Monomoy and Nauset beach (Straumey) fulfil the requirements of the Saga as to the flocks of birds and their nesting. Nauset fulfils the needs of the country into which the Scotch servants were sent, to run to the southwest and return within three days. Old Chatham Harbor, and the long, narrow bay stretching southward, fulfil the needs of Straumfjörd; and against it lies the long, narrow island (Straumey), on both sides of which the tidal currents observed by the Northmen may be observed to-day. See Appendix and detailed Coast Survey map of Cape Cod.

[3] It was white; all Indian corn (maize) is white when unripe. See Glossary.





CHAMPLAIN'S AGAINST MODERN CHATHAM LIGHT.



CHAMPLAIN'S ENTRANCE TO NAUSETT HARBOUR.

Reading between the lines, one sees that Thorfinn observed the storm which sprang up immediately after Thorhall's departure, *gave up his projected* expedition southward, and went promptly with one ship to the rescue of Thorhall.

"Sailing northward round Kjalarnes, they went westward after passing *that* promontory, — the land lying to the left hand [the Gurnet and Cohasset]. There they saw extensive forests."

"When they had sailed for some time, they came to a place where a river flowed from southeast to northwest.[1] Having entered its mouth, they cast anchor on the southwestern bank."[2]

It is not necessary to dwell on the fate of Thorhall. The record of his purpose and departure left us testimony of the situation of Vineland from Cape Cod. He went *northward* around Furdustrand, and attempting to sail *westward* to Vineland, was blown off to sea. He went partly *round the Race* on which the old keel had been set up.

Thorfinn, one sees, was familiar with the position of Vineland with regard to Straumfjörd and Kjalarnes *before Thorhall started to sail there.*[3]

The men, under Thorfinn's direction, felled timber, hewed it, brought it to the ship, and piled it on a cliff to dry. The vines, which ran to the tops of high trees, were cut down to facilitate gathering the grapes, which were dried for future use.[4]

[1] The site of Leif's houses, as already referred to. See the large map of the Charles River from above the Cambridge Cemetery to the Warren Bridge.

[2] This applies to a point in the approach of the Charles with flood-tide to Symonds's hill and the southwestern bank of the bayou (the mouth of the rivulet from Mount Auburn). It is the only point where such landing is practicable, and is between the only promontory (from behind which, at the southwest from the houses, the river issues), and the only cliff on the river in its east and west course, — the cliff on which Thorfinn, as will later appear, piled his mösurr (burrs of trees) to dry, immediately on the steep bank of the river, convenient for loading on the ship. The southwest bank is near the head of a little bayou above Gerry's Landing, where there is solid land easy to reach with a plank

[3] They consumed, as the relator says, *some* time in reaching their destination, — Leif's houses. They were looking for Thorhall, whose wrecked ship might be found somewhere on the shores of Cape Cod Bay, or Plymouth Harbor, along the Scituate beach, or among the Cohasset rocks.

[4] See "Discovery of the Site of the Ancient City of Norumbega (1889)."

Thorfinn went several times back and forth between Hóp and Straumfjörd. He had, as we have seen, established his wife in a dwelling protected by a stockade, — naturally, before the birth of Snorri, her son. I find no evidence that she left Vineland for any point whatever after her arrival, till she sailed with her husband and her little boy, in his third year, for Greenland.

Thorfinn decided to explore the region about Hóp. This enabled him to see that the river, which flowed past his dwellings through a lake to the sea, came first from the west to the east (Waltham to Cambridge). At the point near which the houses were built there was a cliff, and also a cove where the ship might lie against the solid land, — the southwest bank (southwest from the dwelling-house of Leif, afterward occupied by Thorfinn's party), out of the way of the tidal currents. Elsewhere the banks are uniformly of meadow submerged by high tides, unsuited either to loading a ship or to landing from a ship.

After the first winter, one morning early, they saw from Leif's houses nine birch-bark canoes (mistaken for boats of seal-skin) coming down the river, which issued from behind a promontory to the southward. The men in the canoes were small of stature, fierce in expression, swarthy, with ugly hair, great eyes, and broad cheeks. They remained some time, wondering at the new-comers, and then retired round the promontory to the *southwest*. (One relation says to the south.)

Later, there was a second visit of these fierce canoe-men, and a third, and perhaps more visits, coming from beyond the promontory at the southward or southwestward, in such numbers that the whole water looked as if "*sprinkled with coals*" (the brown or copper-colored faces in the canoes). The Northmen called these natives *Skrælinger*, which means, primarily, "men of the lowest order, hideous in appearance;" and secondarily, "a mob, a crowd without a leader," which came to be applied to the Indians as a race.[1] They came for barter, and sold furs for strips

[1] Crantz (Vol. I., p. 254) says the name means also "scraps or pairings," — that is, *dwarfs*. This name has been mistakenly and persistently applied to the Esquimaux of Newfoundland, Labrador, and Greenland, as if it were the name of a *tribe* of Indians.

A birch bark canoe of Maine.

Skin boat of the Alaska Indians
with signal for barter.

of red cloth. On another occasion they received in exchange, as perhaps they did also when the red cloth failed on a former visit, products of the dairy. Later still, the bellowing of a bull frightened the visitors, and they fled to their canoes and rowed back to the southwest. Still later, they came in great numbers and attacked the Northmen, who, finding themselves far outnumbered, fled along the river till they came to some rocks, where they turned about and fought valiantly.[1]

The company of Thorfinn, after three years, abandoned the houses and returned to Greenland.

I have thus given, in a few words, a summary of the story, that we might have it in outline. I proceed to show how its sequences have been misapprehended by the ancient scribe.

The Story of Thorfinn, — how Composed.

When the Thorfinn narratives are carefully studied, they prove, as already remarked, to be at least five distinct relations (Rafn recognized that there were several) and a part of a possible sixth, — possibly, also, of a seventh, and even more. They are the recollections of men on different vessels of a fleet of at least three ships, — recollections held in tradition in families for several generations, which have been somewhat added to by the scribes or copyists from other Sagas; as in the case of Thorhall's fate and Freydis's career, and the sale of the *mösurr* wood to the Bremen merchant.[2]

One of these relations was by a shipmate who went with Bjarni Grimolfson and Gudrid to Leif's houses. Another was by one on the same

[1] At some half-mile below the site of Leif's dwellings there are still some enormous bowlders in the bank of the river below half-tide, at the entrance to a little cove; and the shore above for a long distance, being meadow bank, did not permit of landing. Rocks and "hard pan" at various moderate depths have been found for a distance of some two hundred feet toward the solid land, by driving down steel rods. They indicate at least that in this region of moraines there were some very large detached masses of rock which might have afforded aid to persons flying down stream, where now the ground is covered with the houses of a city.

[2] The latter part of the Hauksbok Saga is the most disconnected and most marred by imperfect sequence and hearsay of any that relate to Thorfinn's expedition.

vessel, who, after two months' stay at Leif's houses, went to Kjalarnes and along Furdustrand with the Scotch servants, and returned, after a short stay at Straumfjörd, to Leif's houses. Another relator stayed through a winter at Straumfjörd. Still another went with the ship to find Thorhall. One party remained only half a month at some place — probably near Thorfinn's (Leif's) house — waiting.

With this key, the whole becomes wonderfully intelligible. In the following paragraphs I present, nearly in the language of the Sagas, what concerns the geography of the expedition, and serves to determine the site of the houses.

I submit, first, what seem to me to be the opening paragraphs of the separate relations.

First Relation. "The conversation often turned, at Bratahlid, on the discovery of Vineland the Good, and they said that a voyage there had great hope of gain. And after this, Karlsefni and Snorri made ready for going on a voyage there, the following spring. Bjarni and Thorhall Gamlason joined him with a ship. There was a man named Thorvard, and also Thorwald, son of Erik, and Thorhall the Hunter, and he was in the same ship with Thorvard and Thorwald These used the ship which brought Thorbiorn from Iceland. There were, in all, forty men and a hundred." (De Costa, page 51.)

Second Relation. "And Karlsefni and Snorri resolved to seek Vineland, and there was much discussion about it. But it turned out that Karlsefni and Snorri prepared their ships to seek Vineland the following summer. And in this enterprise Bjarni and Thorhall joined as comrades with their own ship and crew, who were their followers. There was a man named Thorwald, a relation of Erik. Thorhall was called the Hunter, . . . was of great stature, . . . of a hard nature, taciturn, . . . crafty, malicious. . . . He went in the ship with Thorwald. . . . He used the ship in which Thorbiorn came. . . . They carried forty and a hundred[1] men." (De Costa, page 57.)

Third Relation. "At this time . . . much was spoken about a Vineland voyage; and both Gudrid and others persuaded Karlsefni much to that expedition. Now this expedition was resolved upon, and they got ready a crew of sixty men

[1] The Norse hundred was 120. $40 + 120 = 160$, the number of Thorfinn's total company.

and five women. . . . They put to sea with the ship, and came to Leif's houses safe, and carried up their goods." (De Costa, page 64.)

Another account says: —

"Karlsefni asked Leif for his houses in Vineland, but he said he would lend them, but not give them. Then they put to sea with the ship [the one that contained Gudrid, with sixty men and five women], and came to Leif's houses safe, and carried up their goods." (De Costa, page 72.)

Fourth Relation. "Karlsefni, with Snorri and Bjarni and the rest of his comrades, sailed south. They sailed long, until they came to a river which flowed from the land through a lake and passed into the sea. *Before the mouth of the river were great islands, and they were not able to enter the river except at the highest tide.* Karlsefni sailed into the mouth of the river, and called the land Hóp." (De Costa, page 69.)

Fifth Relation. "It is said that Karlsefni and Snorri and Bjarni and his comrades sailed along the coast to the south. They sailed along until they came to a river flowing from the land through a lake into the sea, where there were sandy shoals, where it was impossible to pass up except with the highest tide Karlsefni sailed up to the mouth of the river with his folk, and called the place Hóp.[1]" (De Costa, page 56.)

Sixth Relation, — a fragment which shows the perplexity of the scribes. "It is some men's say, that Bjarni and Gudrid remained behind, and a hundred men with them, and did not go farther [than Leif's houses]; but that Karlsefni and Snorri went southward, and forty men with them, and were not longer in Hóp than barely two months, and the same summer came *back* [from Straumfjörd]." (Beamish, Prince Society, page 58.)

[1] This paragraph has uniformly been supposed to be an account of an expedition from Straumfjörd to the *south*. Careful study will reveal to the student that as Thorfinn entered Hóp and arrived in this expedition at Leif's houses in Vineland, from which Thorwald had sailed *north* to explore to the north and east, this understanding of the paragraph must be given up. A little further study of the fifth and sixth relations will show that on this reading alone the whole sequence of events in the stories of Leif, Thorwald, Thorhall, and Thorfinn, which has perplexed all students of the Vineland Sagas, comes into instant harmony.

The lowland about Hóp was where the indigenous Indian corn grew, and the higher land where grapevines flourished. It was near where Leif's houses were that the skin boats (birch-bark canoes) first appeared. It was the lake through which, to the sea, a river flowed immediately from the west. It also flows for a short distance from southeast to northwest directly toward the site of Leif's houses. The Hóp was a lake, — a small landlocked bay, salt at flood-tide and fresh at ebb.

How do we know that Thorfinn came back to Leif's house? Because the Saga says so; because, moreover, there was his home, and there were his wife and son.

Seventh Relation, — a fragment. "They passed half a month here [*there*, — Beamish] carelessly, having brought with them their cattle [*and amused themselves, and did not perceive anything new.* — Beamish]."

Thorfinn's Expedition.

I now present an attempt at continuous relation, made up of selections from the different relations.

The conversation frequently turned, at Brattahlid, on the discovery of Vineland the Good; many saying that an expedition there held out a fair prospect of gain. At length Thorfinn and Snorri made preparations for going on an expedition thither in the following spring (1007). Bjarni Grimolfson and Thorhall Gamlason determined to accompany them. There were one hundred and sixty in all, of whom seven were women. They took with them all kinds of livestock, for they designed to colonize the land. Thorfinn asked Leif to give him the dwellings which he had erected in Vineland. Leif told him that he would grant him the use of them, but that he could not give them to him. . . . Thorfinn, with Snorri Thorbrandson and Bjarni Grimolfson and all the rest of the company, sailed toward the southwest. They went on for some time, until they came to a river which, flowing from land, passed through a lake into the sea. They found great islands before the mouth of the river. Thorfinn and his companions sailed up as far as the mouth of the river (at the Brooklyn Bridge), and called the place Hóp. . . . They found sandy shoals there, so that they could not pass up the river except at high tide.[1] They . . . came to Leif's booths hale and whole, and landed their cattle. They took their cargo from the ship, and prepared to remain there. They had with them all sorts of cattle. The country there was very beautiful. They undertook nothing but to explore the land. Having landed, they observed that where the land was low, recently planted (or "new sown") corn grew wild. Where it was higher, vines were found. The cattle went up into the country. They dug fish-pits where the land began, and where the land was highest; and when the tide went down there were sacred fish (halibut) in the pits.

[1] The "sandy shoals" applied to the mouth of the river, where it enters, below flood-tide, the "Back Bay," near the Cottage Farm Station on the Boston and Albany Railroad. The "great islands" were against the outlet of the river, below the lake, into the bay, — visible from the eminence of the old Fort Point and including those farther out, against Nantasket. See Coast Survey map.

Thorfinn Karlsefni and his people had made their dwellings above the lake; and some of the houses were near the water, others more distant. (Beamish, Prince Society, vol. i. p. 55.)

Now took they out their goods and made a separate building, and set that building farther from the strand or the edge of the lake. (Beamish, Prince Society, page 65.) Now hereof is this to say. Karlsefni (Thorfinn) had posts driven strongly round about his booths, and made all complete. At this time Gudrid, the wife of Karlsefni (Thorfinn), bore a man-child, and he was called Snorri.

Karlsefni had wood felled and hewed and brought to the ship, and had the wood piled on the cliff to dry. Every river was full of fish. In the forest there were a great number of wild beasts of all kinds.

Thence they sailed toward the south for *two days*, and arrived at a *ness*, or promontory of land.[1] They sailed along the shores of this promontory, the land lying to the starboard. These shores are extensive and sandy. They made for land, and found on the ness the keel of a ship; whereupon they called the place Kjalarnes. And the strands they called Furdustrands, for it was long and wearisome to sail by them; then the land became indented with coves.

King Olaf Tryggvason had given Leif two Scots, a man named Haki and a woman named Hekia. They were swifter of foot than wild animals; these Leif had given to Thorfinn, and they were then in his ship. When they had sailed beyond Furdustrands, then set they the Scots on shore, and bade them run to the southward of the land and explore its qualities, and come back again within three days. They stayed away the appointed time; but when they came back, the one had a bunch of grapes, and the other an ear of corn.[2] These went on board, and after that they sailed farther.

They sailed into a fjörd (bay, or strait); there lay an island before it, on each side of which were strong currents. They called this island Straumey, — Straum-oe (stream, or current island). There were so many eider-ducks on the island that one could hardly walk without treading on the eggs.[3] They called the place Straumfjord (bay of currents).[4]

They were there for the winter without having provided food beforehand. In the summer the fishing declined, and they were badly off for provisions; then

[1] Cohasset.

[2] How obvious that this was of later date than that of the first landing, when the corn Thorfinn's party saw was "new sown," — that is, *recently planted*, and *before* ears had appeared.

[3] See *Notes* in Appendix about birds' eggs.

[4] That is, open at both extremes, so that water may pass through

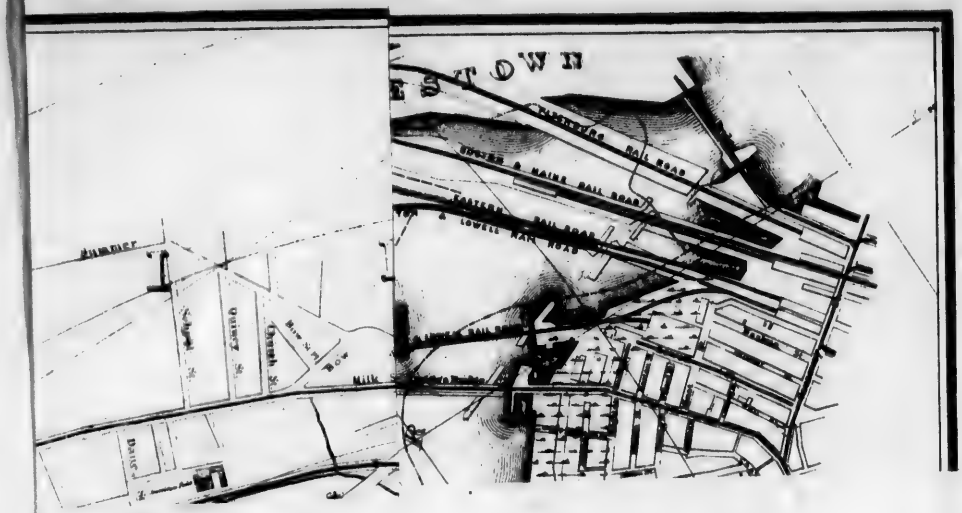
disappeared Thorhall the Huntsman. They searched after Thorhall for three days, and found him on the top of a rock. . . . They bade him come home with them, and he did so. A short time after a whale was cast ashore. . . . The cooks dressed the whale, and they all ate of it, but were all taken ill immediately afterwards. They threw all the remainder of the flesh from the rocks into the sea, commending themselves to God; after which the air became milder. They were again able to go fishing, nor from that time was there any want of provisions, for there was abundance of wild animals hunted on the mainland, of eggs taken on the island, and of fish caught in the sea.

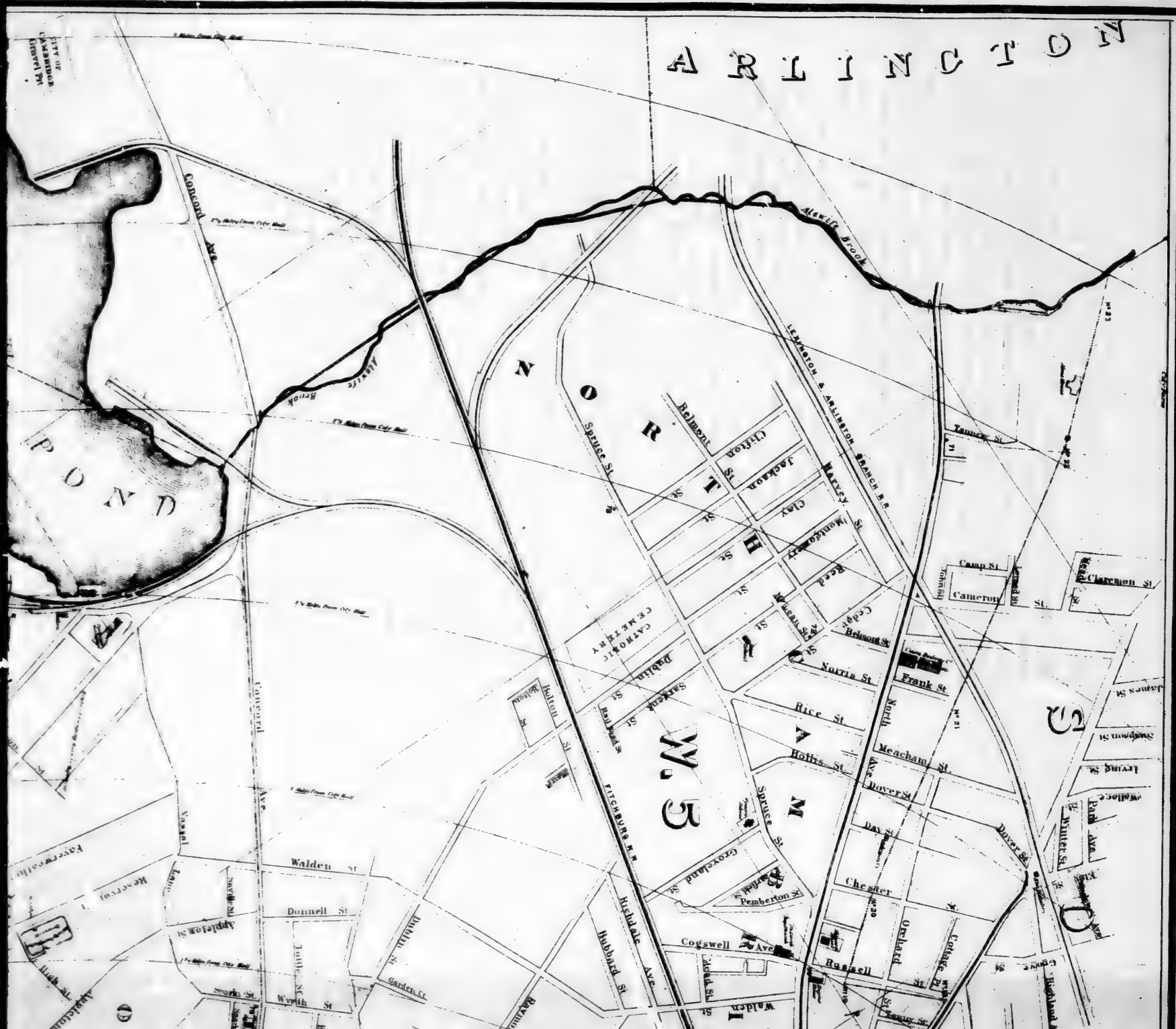
And now they began to dispute where they should go next. Thorhall the Hunter wished to go north, round Furdustrands and Kjalarnes, and so to explore Vinland. Thorfinn would go southwest along the coast. It was thought more advisable that each should explore separately. Thorhall, therefore, got ready out under the island with only nine men. All the others went with Thorfinn.

Thorhall's party then sailed northward, round Furdustrands and Kjalarnes, and would sail westward, but were driven off by a strong adverse wind. Afterward Thorfinn went with one ship to seek Thorhall the Hunter, but the rest remained behind, and they sailed northward past Kjalarnes, and thence westward, the land lying on their larboard (left hand). There were wild woods over all as far as they could see, and scarcely any open places. When they had sailed for some time, they came to a place where a river flowed from southeast to northwest. Having entered its mouth, they cast anchor on its southwestern bank.

One morning early, as they were looking round, they saw a number (nine) of canoes, in which poles were carried, rowed from the south round a cape. These poles vibrated in the direction of the sun, emitting a sound like reeds shaken by the wind. Then said Thorfinn, "What do you think this means?" Snorri Thorbrandson answered, "Perhaps it is a sign of peace. Let us take a white shield and hold out toward them." They did so. Upon this, those in the canoes rowed toward them, seeming to wonder who they were, and went up upon the land. They were swarthy in complexion, short, and savage in appearance, with ugly hair, great eyes, and broad cheeks. When they had stayed some time, and gazed at the strangers in astonishment, they departed and retired beyond the promontory to the southwest.

One morning they saw a great number of canoes approaching from beyond the promontory at the southwest. They were in such great numbers that the whole water looked as if it were sprinkled with coals. Poles were, as before, suspended in each canoe. (They were descending the river on the early ebb tide, — the banks were full, — and holding up their paddles.) Thorfinn and his


ESTOWN
EASTERN RAIL ROAD
MAIN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NORTH
WEST
POND
Concord Ave.
Alewife Brook
Mystic River
Belmont St.
Spruce St.
Clifton St.
Jackson St.
Clay St.
Reed St.
Cedar St.
Belmont St.
Norris St.
Frank St.
Rice St.
Holly St.
Meacham St.
Dover St.
Day St.
Chester St.
Orchard St.
Cottage St.
Russell St.
Cameron St.
Camp St.
Clarendon St.
Tannery St.
Lexington & Arlington Branch R.R.
Fitchburg R.R.
Catholic Cemetery
Dublin St.
Bolton St.
Sargent St.
Holland St.
Grovelland St.
Pemberton St.
Cogswell Ave.
Hubbard St.
Highdale Ave.
Walden St.
Donnell St.
Garden Ct.
Wyoth St.
Appleton St.
Vassal Lane
Concord Ave.
Winter St.
Pearl Ave.
Levine St.
Sandpoint St.
James St.
North Ave.
Dublin St.

CAMBRIDGE
Highland Ave
Cottage Pl
Orchard St
Elm St
Summer St
Cherry St
Maple St
Cedar St
Leland St
Porter St
Craigie St
Lowell St
Belmont St
Central St
Laurel St
School St
Spring St
Beech St
Pleasant St
Park St
Dana Pl
Cogswell Ave
Walden St
Regent St
Creighton St
Richdale Ave
Hubbard St
Mt Pleasant St
Washington Ave
Raymond St
Dudley St
Avon Hill St
Lambert Ave
W Vernon St
Arlington St
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Buckland St
Pond St
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Fayette St
Sacramento St
Raymond St
Everett St
Irving St
Francis Ave
Baldwin St
Trowbridge St
Howdoin St
Linnaean St
Norton St
Wyeth St
Ware St
Walker St
Garden St
Botanical Garden
Dublin St
Dunnell St
Holly St
Tuttle St
Walker St
Wyeth St
Kirkland St
Cambridge Observatory
Chauncy St
Felton St
Concord Ave
Common
Harvard College
Quincy St
Prescott St
Ware St
Trowbridge St
Ellery St
Oxford St
Berkeley St
Buckingham St
Sparks St
Appleton St
Brattle St
Mount Auburn St
Old Burying Ground
Reservoir
Dana Park
Villier St
Vine St
Durham St
Kent Square
Garden Court
Beacon Court
Pembroke St
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Richdale Ave
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Appleton St
Brattle St
Mount Auburn St
Old Burying Ground
Reservoir
Dana Park
Villier St
Vine St
Durham St
Kent Square
Garden Court
Beacon Court
Pembroke St

Boston & Lowell R.R.
Asylum Ave.
Lean Asylum
Boston St.
Munroe St.
July St.
Lynwood St.
Chestnut St.
Medford St.
Maple St.
Mystic St.
Warren Ave.
Columbus Ave.
Milk St.
Everett St.
Lynden St.
Merrimac St.
Allen St.
Charlestown
FITCHBURG R.R.
Clark St.
Washington St.
Dean St.
Dana St.
Calvin St.
Lyme St.
Cambridge St.
Adrian St.
Concord Ave.
Reckon St.
Oak St.
Prospect St.
Pemberton Sq.
Hancock St.
Bacon St.
Mary St.
Columbia St.
Brattle St.
Willow St.
Bowdoin St.
Jefferson St.
Bulfinch St.
Lincoln St.
Hanover St.
Portland St.
Boston & Maine R.R.
Causeway St.
Traverse St.
Webster Ave.
Hampshire St.
Elm St.
Columbia St.
Union St.
Pynchon St.
Bristol St.
Norfolk St.
Prospect St.
Inman St.
Amory St.
Antrim St.
Fayette St.
Maple Ave.
Highland Ave.
Ellsworth Ave.
Broadway
Market St.
Harvard St.
Dunstan St.
Main St.
Chatham St.
Lee St.
Hancock St.
Centre St.
Clinton St.
Bigelow St.
Inman St.
Prospect St.
Ellery St.
Pond St.
Trenbridge St.
COMMON
Worcester St.
Suffolk St.
Washington St.
Austin St.
Chambers St.
Pine St.
Cherry St.
Green St.
Franklin St.
Kinnaird St.
State St.
Broad St.
Winter St.
Cambridge St.
Otis St.
Thorndike St.
Spring St.
Sixth St.
Fifth St.
Pine St.
Charles St.
Bennet St.
Rogers St.
Binney St.
Munroe St.
Potter St.
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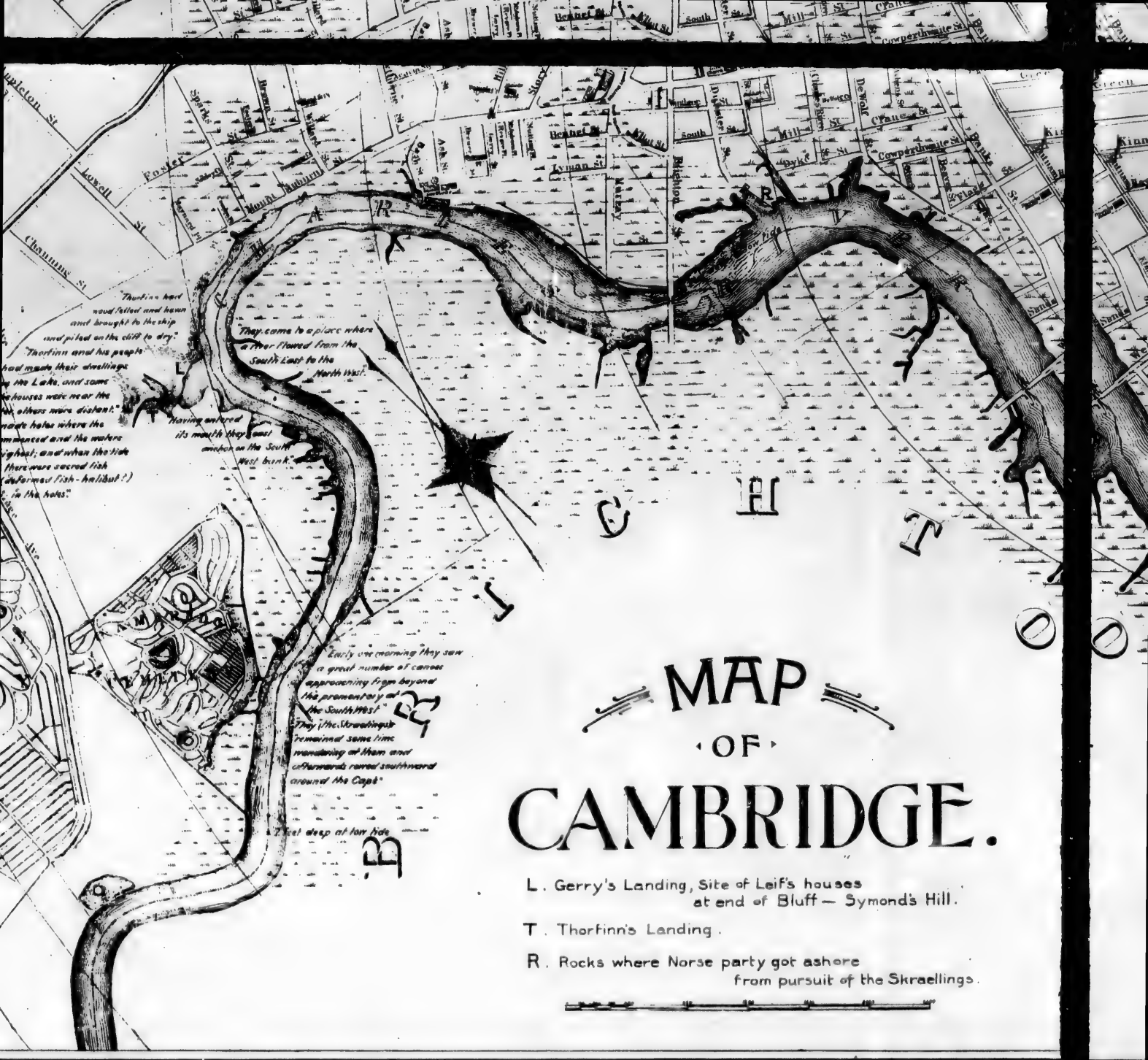
CHARLESTOWN
CHARLES RIVER
Eastern Rail Road
Boston & Maine Rail Road
Boston & Lowell Rail Road
Fitchburg Rail Road
Prison Point
Bridge
North St.
Winter St.
Sore St.
Cambridge St.
Otis St.
Tyndale St.
Spring St.
Fifth St.
Pine St.
Charles St.
Beach St.
Hudson St.
Binney St.
Monroe St.
Potter St.
Broadway
Harrard St.
Main St.
Third St.
Second St.
First St.
West Boston Bridge
COMMON
10½ feet deep at low tide.
"Thorfinn and all the rest of his company
sailed toward the southwest (from Greenland).
They went on for some time until they came to a
river which, flowing from the land passed through
a lake into the sea."
"The ship grounded on an old Hide."
"where a river poured out of a lake."

CITY OF CAMBRIDGE
Gravel Pit
FRESH POND
WATERTOWN BRANCH R.R.
Huron St
Lake View Ave
Lexington Ave
Hawthorne Ave
Fresh Pond Lane
Brattle St
Elmwood Ave
Mount Auburn
Grove St
Woodland St
Cushing St
CEMETERY
Kirkland St
Prospect St
Auburn St
Vine St
Ivy St
Lewis St
Cushing St
BIRD'S POND
AMPHITHEATRE
Belmont St
Mount Auburn St
Coolidge St
CATHOLIC CEMETERY
MOUNT AUBURN CEMETERY
WATERTOWN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Bennett St
Ash St
Cowperthwaite St
Crane St
DeWolf St
Banks St
Beacon St Place
Kinnaird St
Green St
Richdale Ave
Harvard Sq
Mass Ave
Boylston St
Memorial Drive
Charles River
Low Tide
"Thorfinn and his people had made their dwellings by the Lake, and some of the houses were near the lake, others more distant."
"Thorfinn had hewn wood, felled and hewn and brought to the ship and piled on the cliff to dry."
"They came to a place where a River flowed from the South East to the North West."
"Having entered its mouth they cast anchor on the South West bank."
"Early one morning they saw a great number of canoes approaching from beyond the promontory at the South West."
"They (the Skraelings) remained some time wondering at them and afterwards rowed southward around the Cape."
7 feet deep at low tide
L
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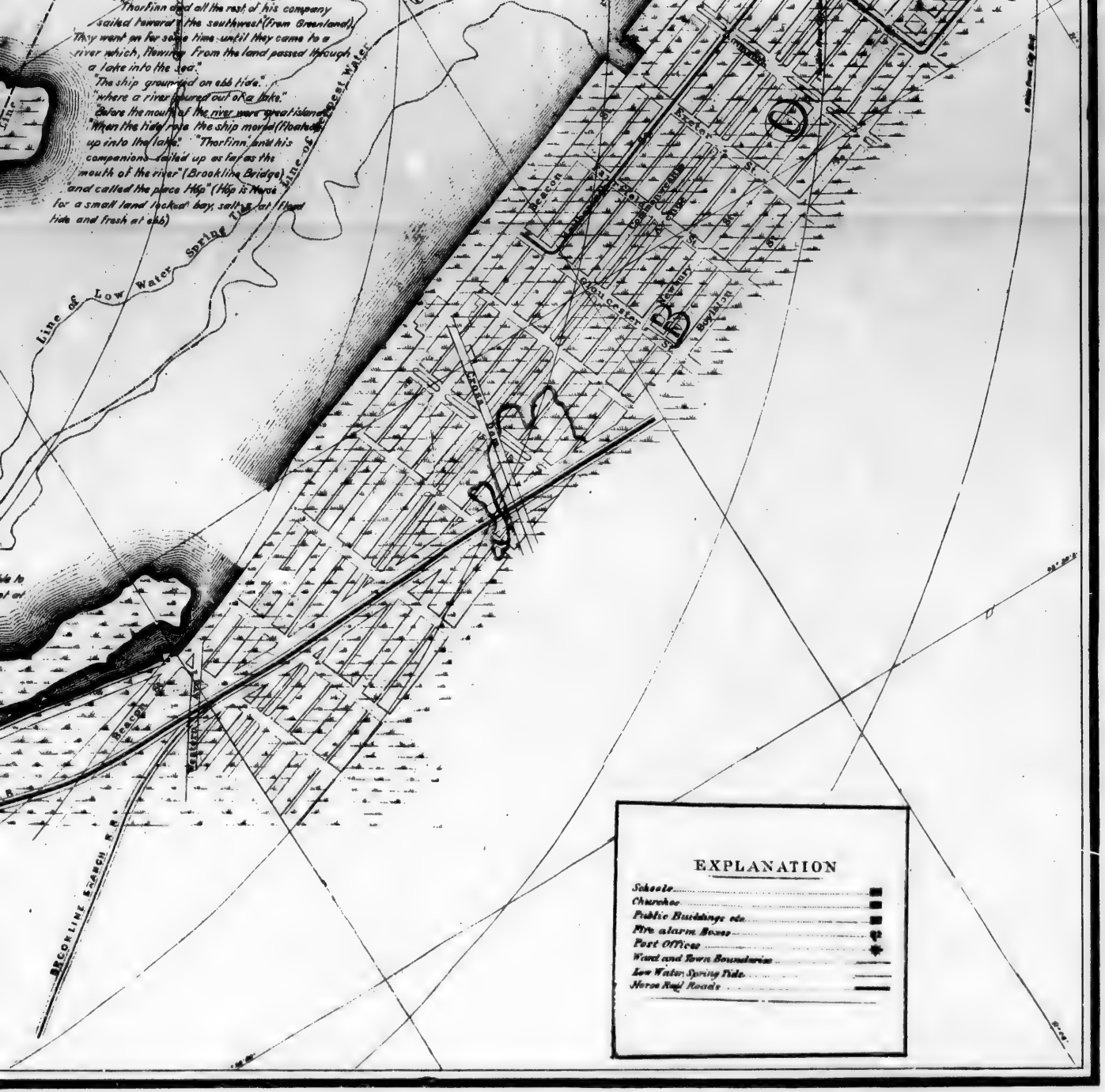
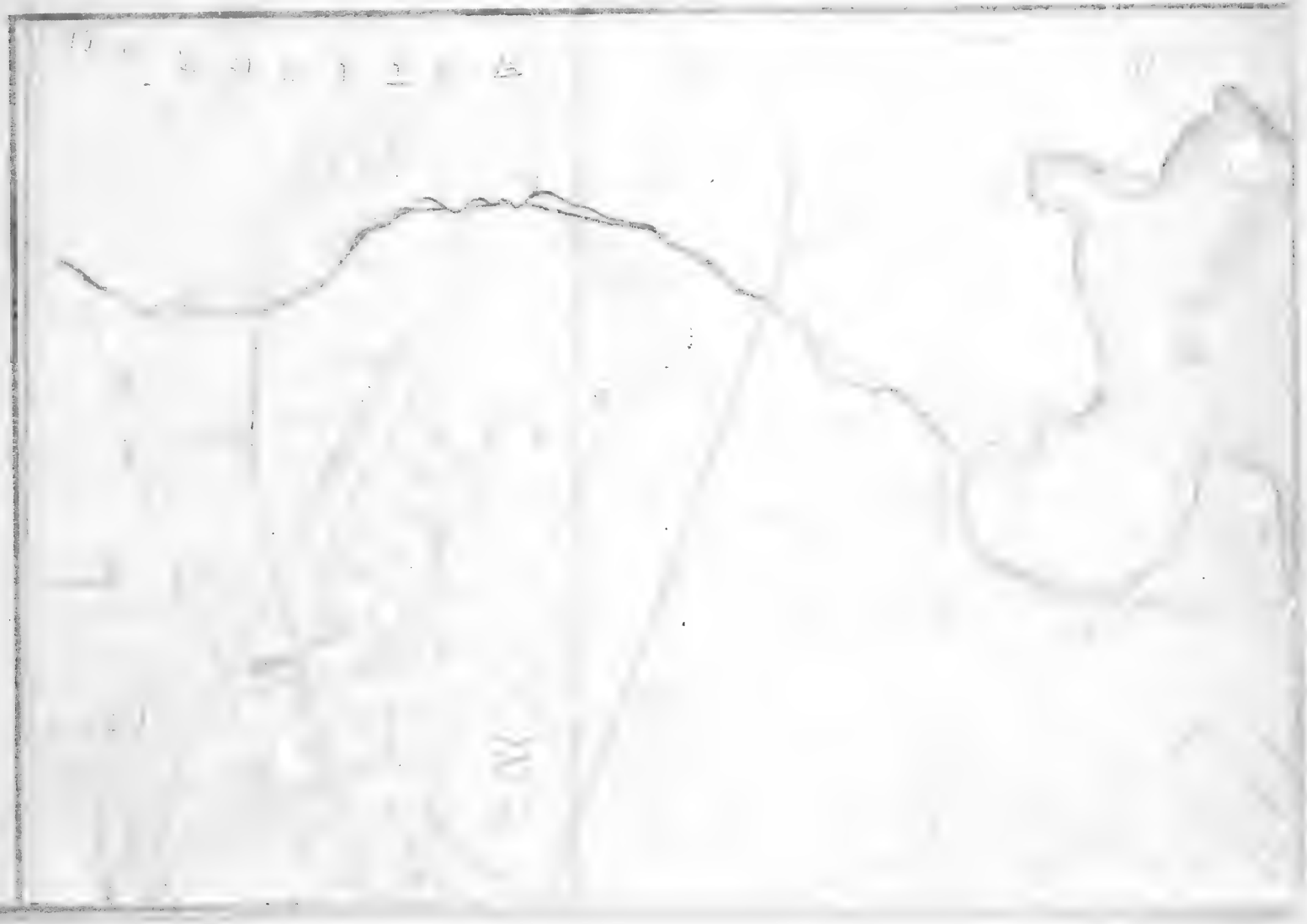
MAP
OF
CAMBRIDGE.
L. Gerry's Landing, Site of Leif's houses at end of Bluff — Symond's Hill.
T. Thorfinn's Landing.
R. Rocks where Norse party got ashore from pursuit of the Skraellings.

Franklin St.
Kinnaird St.
Bayard Pl.
Magee Pl.
Howard St.
Putnam Pl.
Hewes St.
Spring St.
Western Ave.
Allen St.
Blackstone St.
Pier C.
Green St.
Franklin St.
Auburn St.
Williams St.
Cottage St.
Pleasant Pl.
Upton St.
Perry St.
Warland St.
Laurel St.
Rockwell St.
Park St.
Fairmont St.
Prince St.
Lawrence St.
Lake St.
Erie St.
Hamilton St.
Allston St.
Putnam Ave.
Chestnut St.
Florence St.
Tufts St.
Glenwood St.
Granite St.
Ivy Street
Pearl St.
Sydney St.
Waverly St.
Henry St.
Pacific St.
DeCatur St.
Valentine St.
Line of Low Water
Harbor
Entrance
W. 4
CAPTAINS ISLAND
Boston & Albany R.R.
Beacon
McGlinn Branch R.R.
BROOKLINE


"Thorfinn and all the rest of his company sailed toward the southwest (from Greenland). They went on for some time until they came to a river which, flowing from the land passed through a lake into the sea."
"The ship grounded on ebb tide."
"where a river poured out of a lake."
"Before the mouth of the river were great islands."
"When the tide rose the ship moved (floated) up into the lake." "Thorfinn and his companions sailed up as far as the mouth of the river" (Brookline Bridge) "and called the place Hóp" (Hóp is Norse for a small land locked bay, salt at flood tide and fresh at ebb)
Line of Low Water Spring Tide
Line of
Boston
Roxbury
Brookline
Brighton
Cambridge
Charles River
Back Bay
Boston & Albany R.R.
Brookline & Branch R.R.
EXPLANATION
Schools
Churches
Public Buildings etc.
Fire alarm Boxes
Post Offices
Ward and Town Boundaries
Low Water Spring Tide
Horse Rail Roads



party held out a white shield; after which a barter of goods commenced between them. These people desired above all things to obtain red cloth; in exchange for which they offered various kinds of skins, some perfectly gray. They were anxious, also, to purchase swords and spears; but this Thorfinn and Snorri forbade. For a narrow strip of red cloth they gave a whole skin, and tied the cloth round their heads. (They were familiar with woven fabrics; the wan woman who visited Gudrid wore a woven petticoat.) Thus went on their traffic for a time. When the supply of cloth began to run short, Thorfinn's people cut it into pieces so small that they did not exceed a finger's breadth; and yet the mob (Skrælings) then gave for them as much as before, and even more.

One morning (this may have been on another vessel of the fleet returning from Straumfjörd) as they were tacking around they saw a great number of canoes, in which poles (paddles) were carried. The Norsemen held out a white shield, — the sign of peace. Then those in the canoes — Skrælings — rowed toward them, seeming to wonder who they were, and landed. They were swarthy in complexion, short and savage in appearance, with ugly hair, great eyes, and broad cheeks. When they had stayed for some time and gazed at the strangers in astonishment, they departed and retired beyond the *promontory to the southwest*.

Either on this or on a subsequent occasion, and more than once, the "mob" were supplied with milk porridge in exchange for furs.

In the progress of one occasion of barter, —

"It happened that a bull which Thorfinn had brought with him, rushing from the woods, bellowed lustily. The mob was terribly alarmed at this, and running down quickly to their canoes, rowed back toward the southwest; from which time they were not seen for three weeks. At the end of that time a vast number of the canoes of the mob were seen coming from the southwest. All their poles [paddles? — they were floating with the ebb-tide] were on this occasion turned opposite to the sun, and they all howled fearfully. Thorfinn's party raised the red shield. The mob [Skrælings] landed, and a battle followed. There was a sharp shower of weapons, for the mob used slings. Thorfinn's party saw the mob raise on a long pole a large globe not unlike a sheep's paunch, and almost of a blue color. They hurled this from the pole toward the party of Thorfinn, and as it fell, it made a great noise. This caused great alarm to Thorfinn and all his people; so they thought of nothing but running away, and fell back along the river ['*flew* along the river,' another version], for it appeared to them that the mob pressed upon them from all

sides. They did not halt till they reached some rocks,[1] where they turned about and fought valiantly. Freydis [half-sister of Leif], going out and seeing the followers of Thorfinn flying, exclaimed: 'Why do strong men like you run from such weak wretches, whom you ought to destroy like cattle? If I were armed, I believe that I should fight more bravely than any of you.' The mob pursued her. She saw a man lying dead, in whose head a flat stone (flint arrow-head) was sticking. His sword lay naked by his side. This she seized, and prepared to defend herself. The mob came up with her. She struck her bared breast with the naked sword, which so astonished the mob that they fled back to their canoes, and rowed off as fast as possible. One of the Skrælings had taken up an axe and looked at it awhile, and wielded it against one of his comrades and cut him down, so that he fell dead instantly. Then the stout man took the axe, looked at it awhile, and threw it into the sea as far as he could.

"Thorfinn and his people praised the courage of Freydis. Two of their number fell, and a great number of the mob. Then the followers of Thorfinn, having been so hard pressed by the mere numbers of the enemy, returned home and dressed their wounds. Considering how great the multitude which had attacked them, they perceived that those who had come up from the canoes could have been only a single band, and that the remainder and greater part must have come upon them from ambush, — or, according to another relation, that there may have been superhuman aid.

"Karlsefni stayed there with his men the whole winter, but toward spring he made known that he would not stay there any longer, and would return to Greenland. Now they prepared for this voyage, and took much goods from thence, — vines, grapes, and skin-wares (*peltry, furs*). They put to sea, and their ship came to Eriksfjord."[2]

We return now to the bearing of the points gained from the Thorfinn Sagas upon the demonstration of the site of Leif's houses.

[1] Bowlders leading to a bluff. There were large bowlders in the gravel, of which the rocks, still visible at low tide near College Wharf, are an illustration. The City Engineer has, at my instance, found similar ones by driving down a steel rod for a distance of some hundreds of feet toward the firm land. See on map of river flowing through a lake to the sea, including Thorfinn's Cliff and the Rocks.

[2] It will be observed that I have omitted many details that do not concern the question of the Landfall and the site of Leif's houses. Some of them are of the deepest interest, and have been treated with a view to giving them a place in the Appendix; but their volume has compelled me to exclude much that had been prepared.

RESUMÉ.

Leif's Houses on the Charles.

My recent papers[1] have identified on the river Charles the site of Norumbega, a settlement of Northmen, as that of the modern Watertown. Here are the walled remains of an ancient city on a river in the forty-third degree, above a Hóp, through which the river Charles flows to the sea. Numerous maps, and the geographical literature of the sixteenth and seventeenth centuries, settle it. Norumbega was a form of Norway, — Norvega, Norbega, Nor'mbega, — a region where Northmen, men of Norwegian descent, lived.

The site of Leif's houses is three miles below that of Norumbega.

Thus, the name Norumbega applied to a river, a city, and a region of country which on numerous maps was in Nova Francia, — the original new France of Verrazano, — in which, according to Mr. Bancroft, was situated the modern city of Boston.

The maps of Ortelius, Solis, and Botero are manifestly copies of a common original. They present to us a Province of Norway in New France, in that portion of the modern State of Massachusetts looking out on the Bay between Cape Cod and Cape Ann in the forty-third degree.

In this province are Norumbega and Vineland.

Let us recall what the Sagas and more recent authorities say of the three points, — Cape Ann, Cape Cod, and the mouth of the Charles River at Nantasket.

"Before the mouth of the river," — that is, the river on which, within its mouth, were the houses Leif built, and on which river at the head

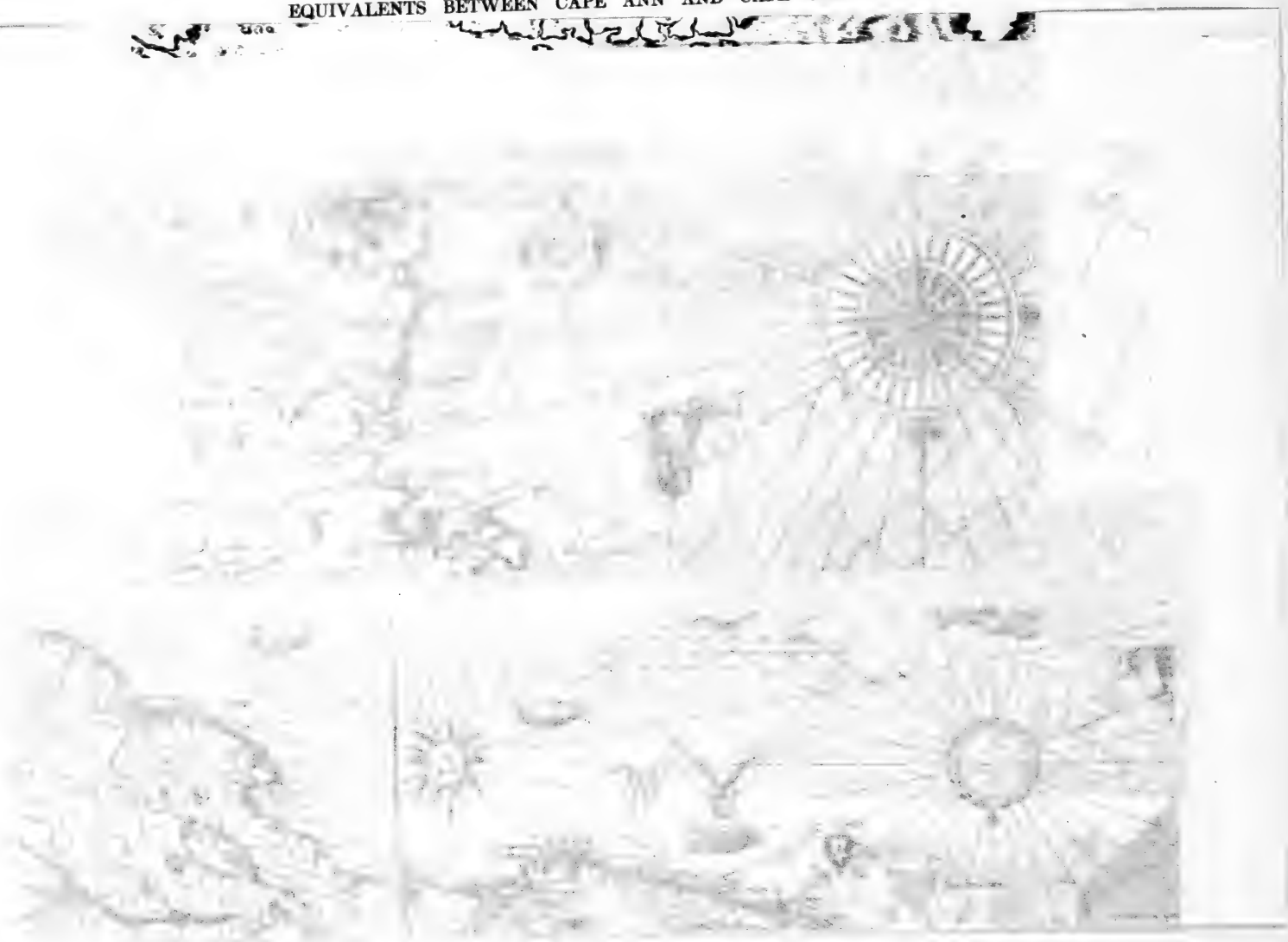
[1] Discovery of the Ancient City of Norumbega, 1889. The Defences of Norumbega, 1891.

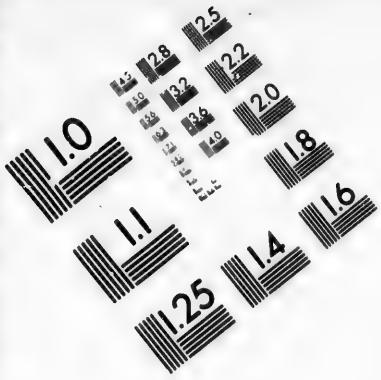
of tide water, three miles above, was the city of Norumbega, — "before the mouth of [this] river," Thorfinn says, "*were great islands.*" So say Allefonsce and Thevet, Champlain and Winthrop, and the Coast Survey. All except Allefonsce record the elbow of Nantasket and Hull. The last three place the name Cohasset at the salient opposite Nahant.

Thorwald attempted in his second season in Vineland to explore the shore to the east and north from the mouth of the river, — the trend towards Cape Ann, — and around the land to the northwest; but he was driven off by a storm, and swept upon the neck of Cape Cod, where he was wrecked, and where the keel of his ship was broken off. Here it was that after renewing his keel, he set up the old one, and called the cape Kjalarnes, — Cape of the Keel. From this — the genitive, the nominative being Kjölrnes, afterward becoming Coaranes — there came Carenas, C. de Arenas, Cape Sablons, Cape Blanc, and Witte Hoeck; and last, Cape Cod, — all of which apply to the same point.

Thorfinn sailed from Leif's houses out through the harbor, along Scituate beach, across Cape Cod Bay, around Kjalarnes, and southward along the Furdustrand (the curved east side of the peninsula) to Straumfjörd (Chatham), the *heel* of Cape Cod; and later, seeking Thorhall, he returned round Kjalarnes, along the shores of the Bay, past the Gurnet to Hóp, — the Boston Back Bay, — coming to Leif's houses on the Charles near the Cambridge City Hospital.

Leif first landed — made his Landfall - on an island at the north end of Cape Cod (the Kjalarnes of Thorwald and Thorfinn), now joined to the main land, and afterward sailed across Cape Cod Bay. Thorwald also sailed across the Bay. Leif and Thorfinn sailed westerly, past the promontory, beginning at the Gurnet (where Thorwald lost his life and was buried) and stretching to the northward-northeastward, from the main land to Cohasset, between which and Nahant was the gate to Boston Harbor, (the *Port aux Isles* of Champlain), the outer mouth of Charles River; thence to the inner mouth of the river against East Boston, and up the Charles through the Back Bay and river above Brook

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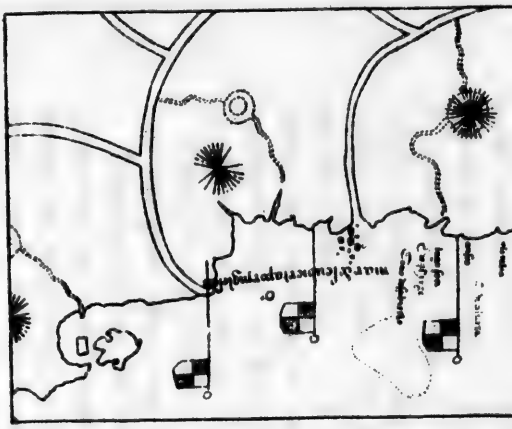
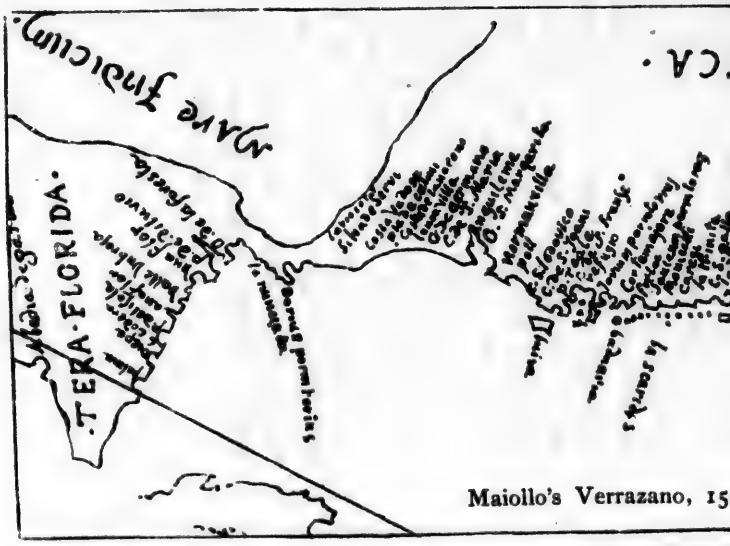
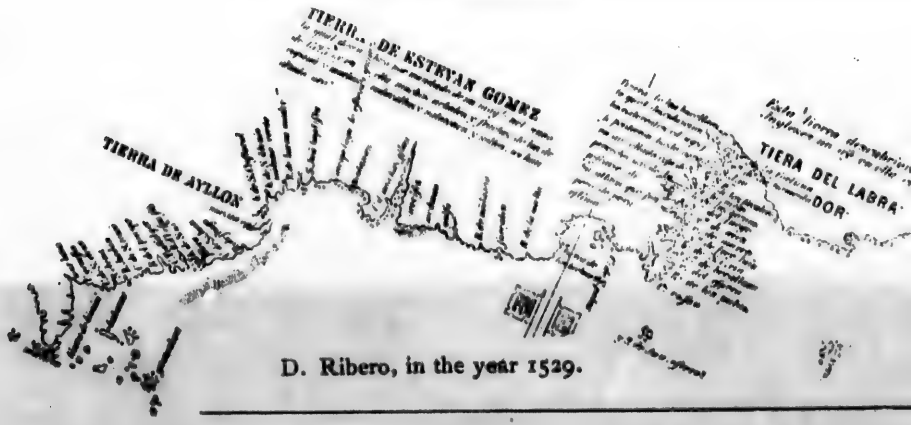


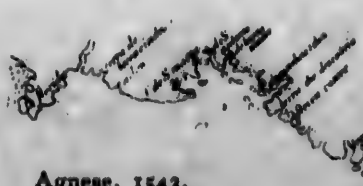
Cosa, 1500.



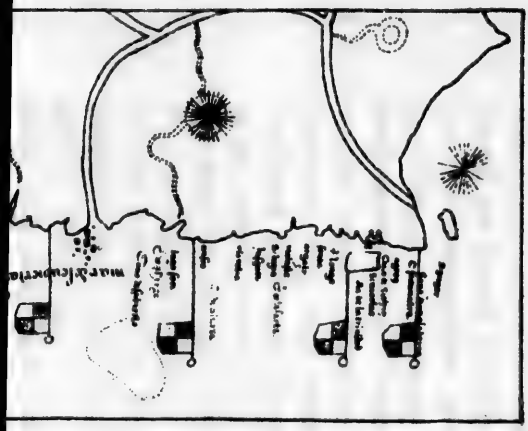
Maiollo's Verrazano, 15



D. Ribero, in the year 1529.

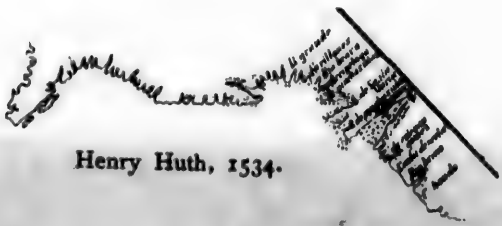


Agnese, 1543.

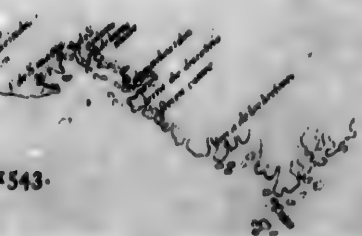


Cosa, 1500.

aiollo's Verrazano, 1524.



Henry Huth, 1534.



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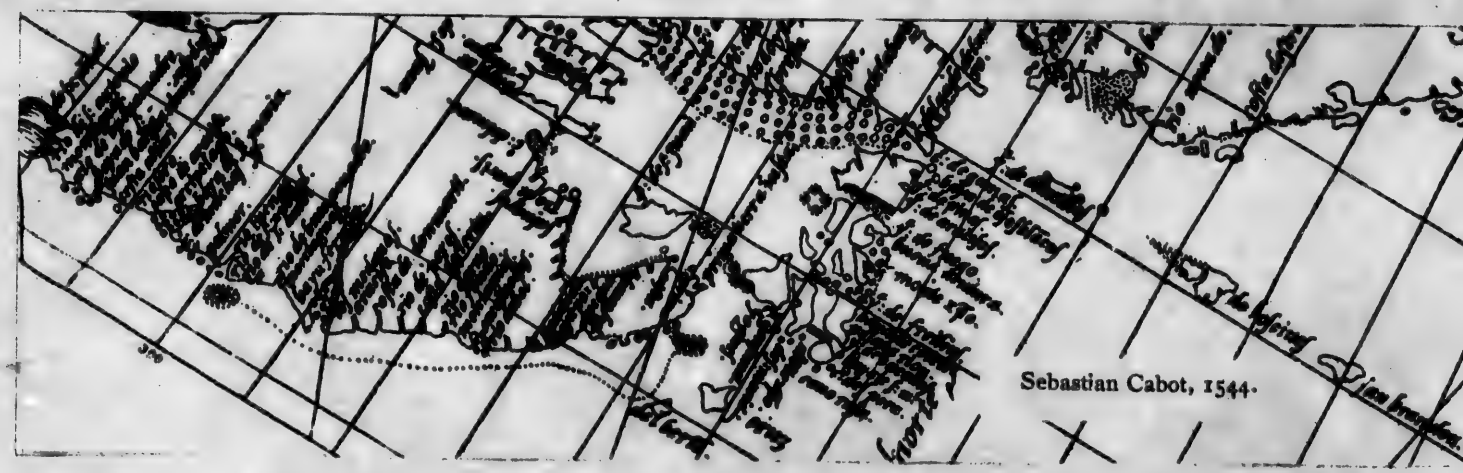
Vallard, 1543.

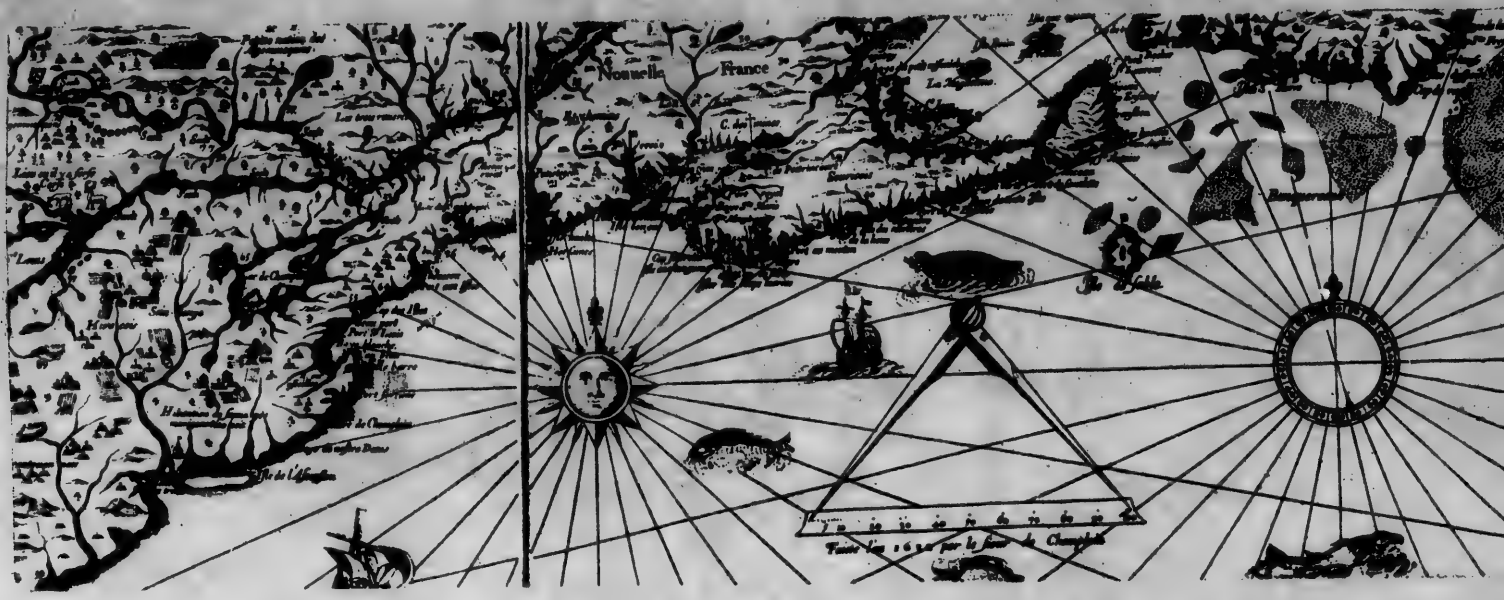
Wytfliet, 1597.

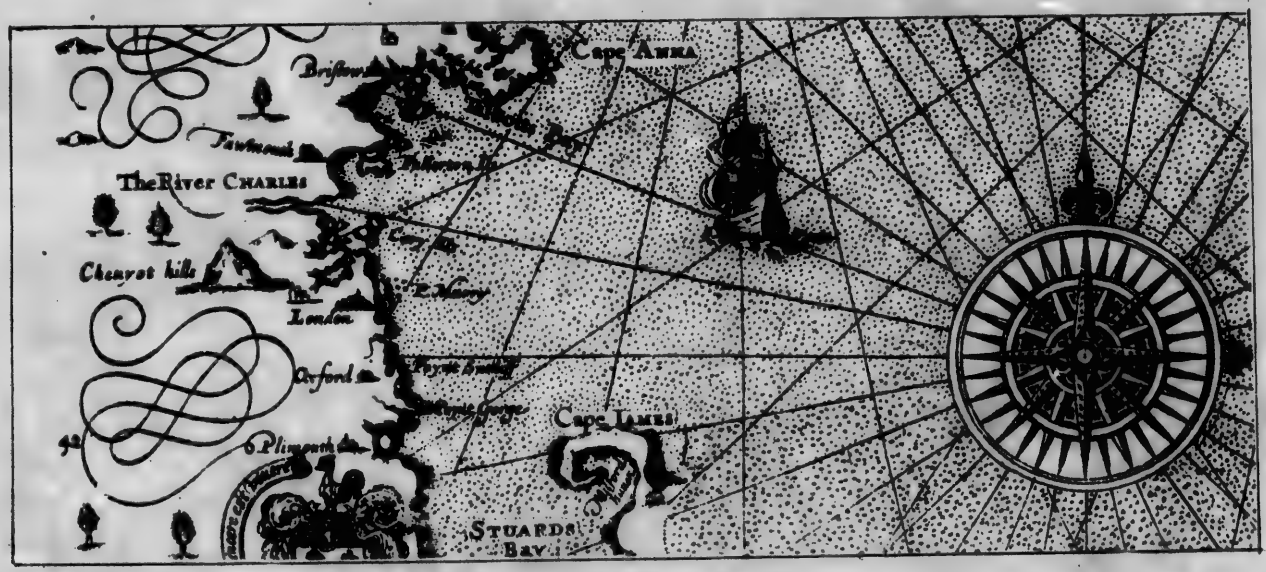


Sebastian Cabot, 1544.

Gastaldi, 1550.

Gastaldi, 1550.





Capt. John Smith, 1614.

BOTH ATLANTIC COAST AND GULF COAST

line Bridge, to the south end of Symonds's hill near the Cambridge City Hospital. Here was the site of Leif's houses.

Let us look at the forms of expression in the different translations.

Sailing across the mouth of a bay, or "through a bay;" or, as another relation says, "into that sound that lies between the island and the ness which jutted out north of the main land, and steered westward past the ness;" or, according to another version, "westward past a promontory projecting to the northeastward from the main land,"— all these leave from Cape Cod but one path for Leif's vessel. This path led westerly toward the Gurnet, and then northwesterly along the Scituate beach and past the Cohasset rocks; which salient coast — the Gurnet, Scituate beach, and Cohasset — constitutes the promontory projecting northerly and northeasterly from the mainland; and then sailing westerly through the channel against Nantasket to the mouth of a river "before which," as Thorfinn's Saga says, "there were great islands" (Noddle's Island, Castle Island, Governor's Island, and the lesser islands nearer the entrance to the harbor), where Leif's ship grounded on an ebb tide. At this point the vessel sat upright, "stood up" (of course, in a yielding bottom). At the inner mouth of the river there are two fjörds. They are the lower Charles leading to the Boston Back Bay, and the Fort Point Channel leading to the South Bay, separated from the Back Bay in early times (see De Barre's map) by a neck, at the narrowest part but a few rods wide. The study of the map and the course of the tide tells us in general terms where the grounding on an ebb tide must have been. The vessel must have been to the northerly of Fort Hill.[1] Why?

First, for this reason: The inner mouth of the river before which were the great islands was to the north of the ancient Fort Hill.

The place before the mouth of the river where Leif's ship grounded on an ebb tide, and "stood up," was in soft bottom (had it been hard bottom she would have careened, — not "stood up," as the Saga says), out of the swash channel. Looking at the surroundings on the Coast Sur-

[1] See also Pilot Chart of Boston Harbor.

vey and the bearings as given in the Sagas, one sees that it was probably in the ancient shallows off the present site of Faneuil Hall, not far from a line at the same time tangent to the ancient salient of Fort Hill, and also to that of Copp's Hill.

Where the vessel grounded, the men took boat and rowed to the Boston shore. At Cape Cod they had been ashore for a few hours, — only touched on an island. They were naturally impatient to be on the mainland where (for example) they might get fresh water. For a brief time a part of the crew were on *terra firma*. On the return of the tide the men went on board the vessel.

Second, when the rising tide lifted the vessel it "*moved*," — the literal language of the Saga. It was not towed or rowed, but *floated* of itself, or "moved." Had it grounded to the *south* of Fort Hill, it would have been carried up Fort Point Channel, in which case the next terms in the Saga would not apply. They require a "*river flowing through a lake.*" The vessel, therefore, could not have gone up into the south bay, into which, as no river enters, no river could flow *through*.

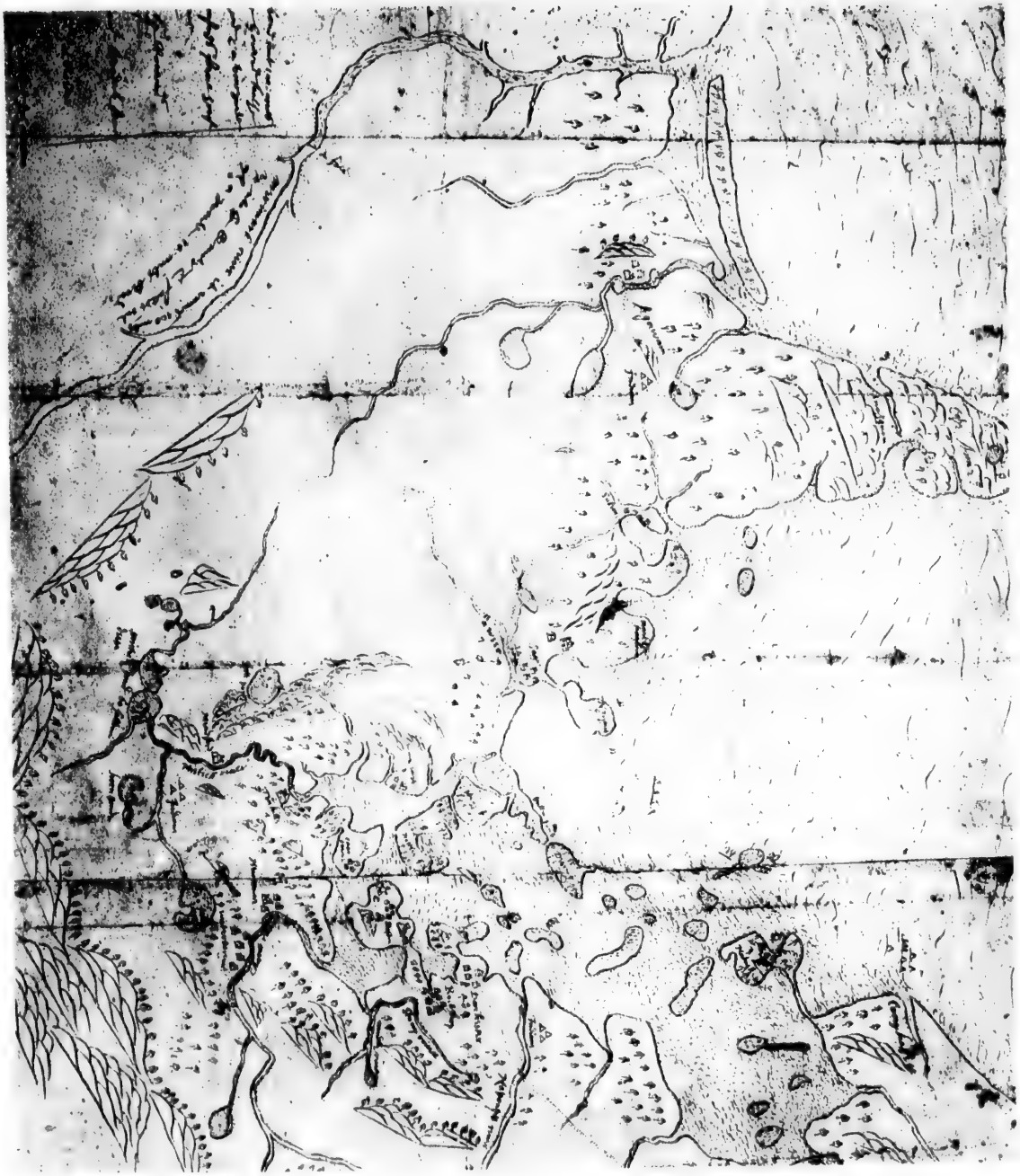
The vessel could only have gone up the Charles, which still flows through the ancient Back Bay, or what remains of it after the great encroachment of the cities on either side.[1]

The Coast Survey map of Boston Harbor and the Back Bay, in its recorded soundings with the more lightly shaded bed of the stream at low water, will illustrate what is said of the lake through which the river flowed to the sea.

The large detached map from the Warren Bridge to the west boundary of the Winchester Place exhibits in great detail the features to which the Sagas refer.

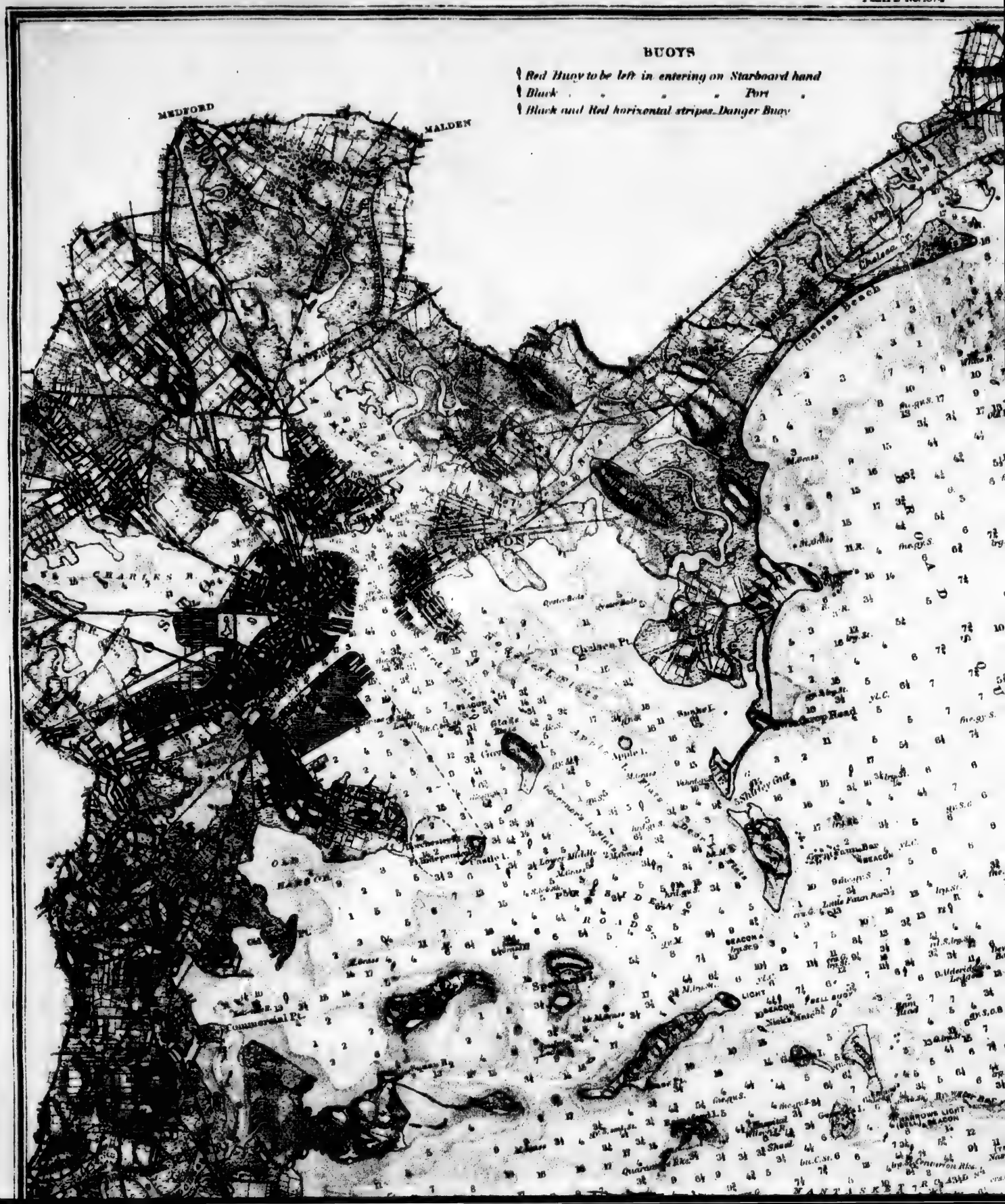
It will be a light task to see where the vessel *must have gone* after entering the Back Bay on the rising tide. On either side of the channel at low tide was mud, and beyond it were the bare mud flats, in

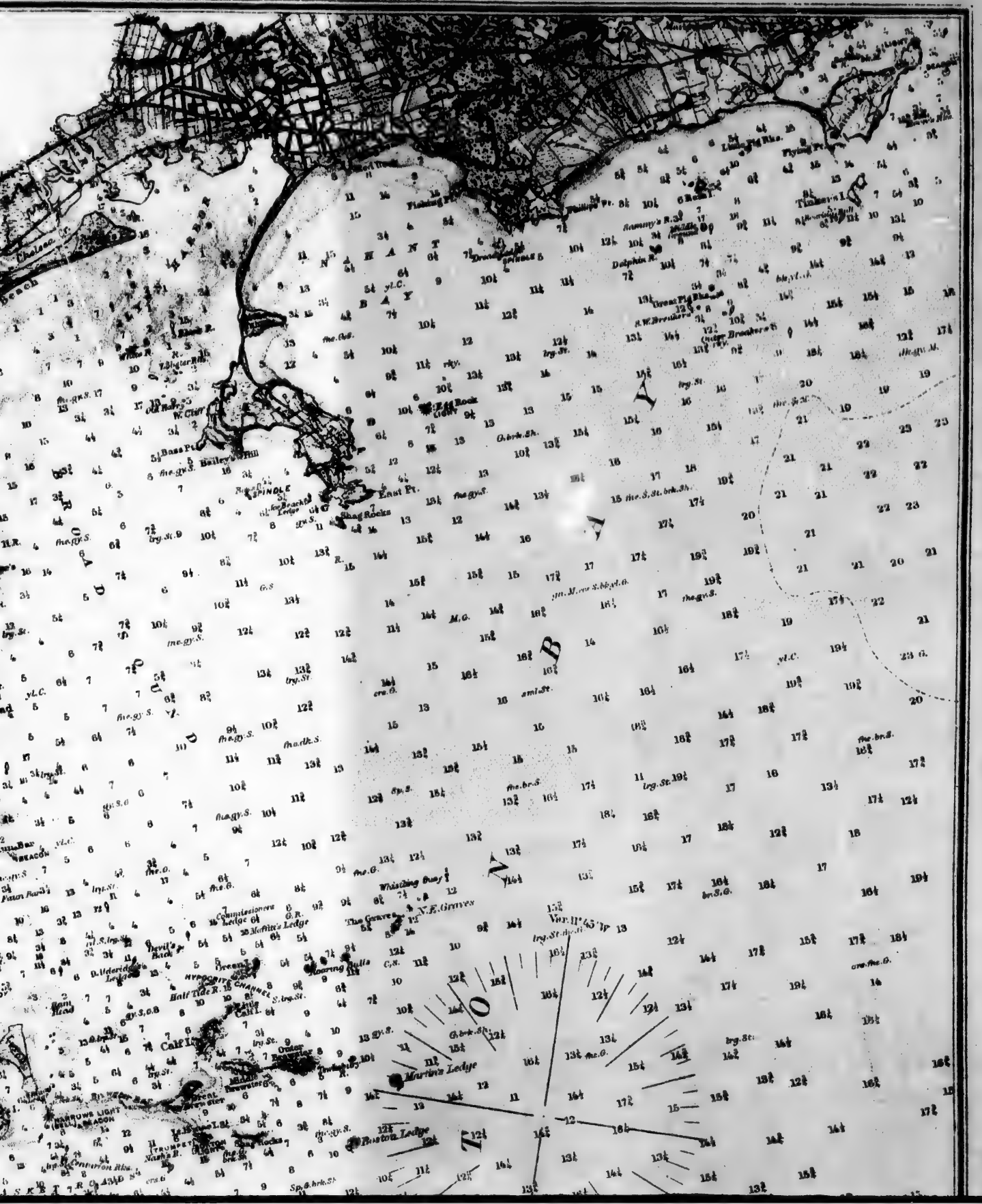
[1] See map of the river flowing through a lake to the sea, showing ancient extent of the Back Bay.



Mistic River
Neck
Noddle's Island
East Boston
Winthrop
Charlestown
Mistickmut.
Leechmere Pt
Cambridge
Cripps Hill
Mashawomuk
Neck
Boston
Beacon Hill
Fort Hill
Charles River
Neck
Governor's Island
Castle Island
Roxbury
Dorchester Neck
Spectacle Island

MEDFORD


BUOYS
Red Buoy to be left in entering on Starboard hand
Black " " " Port "
Black and Red horizontal stripes_Danger Buoy
MEDFORD
MALDEN
Chelsea
Chelsea Beach
BOSTON
CHARLES R.
Chelsea Pt.
Apple I.
Shirley Gut
Lower Middle
Castle I.
OLD HARBOR
Commercial Pt.
Nixes Mate
Spectacle I.
Deer I.
Governors Island
Governors Ledge
Little Pitch Rock
Quarantine
NANTASKET


Chelsea Beach
Bass Pt.
Bailey's Hill
East Pt.
Shag Rocks
Whistling Buoy
Martin's Ledge
Boston Ledge
Half Tide R.
Calf Island
Great Brewster
Outer Brewster
Graves Light
Boston Light
Minot's Light
Hypocrite Channel
Main Ship Channel
Broad Sound
Lynn Harbor
Nahant
Egg Rock
Dolphin R.
Tinkham's Ledge
Flying Pt.
Lynn
Revere
Winthrop
Point Shirley
Deer Island
Hull
Hingham
Weymouth
Quincy
Dorchester
Boston
Chelsea
Everett
Malden
Medford
Somerville
Cambridge
Charlestown
East Boston
Roxbury
Brookline
Milton
Dedham
Needham
Wellesley
Newton
Watertown
Belmont
Arlington
Winchester
Stoneham
Woburn
Reading
Wakefield
Saugus
Lynnfield
Peabody
Danvers
Salem
Marblehead
Swampscott
Nahant
Lynn
Revere
Winthrop
Point Shirley
Deer Island
Hull
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Wellesley
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Watertown
Belmont
Arlington
Winchester
Stoneham
Woburn
Reading
Wakefield
Saugus
Lynnfield
Peabody
Danvers
Salem
Marblehead
Swampscott

BOSTON BAY

AND HARBOR

MASSACHUSETTS

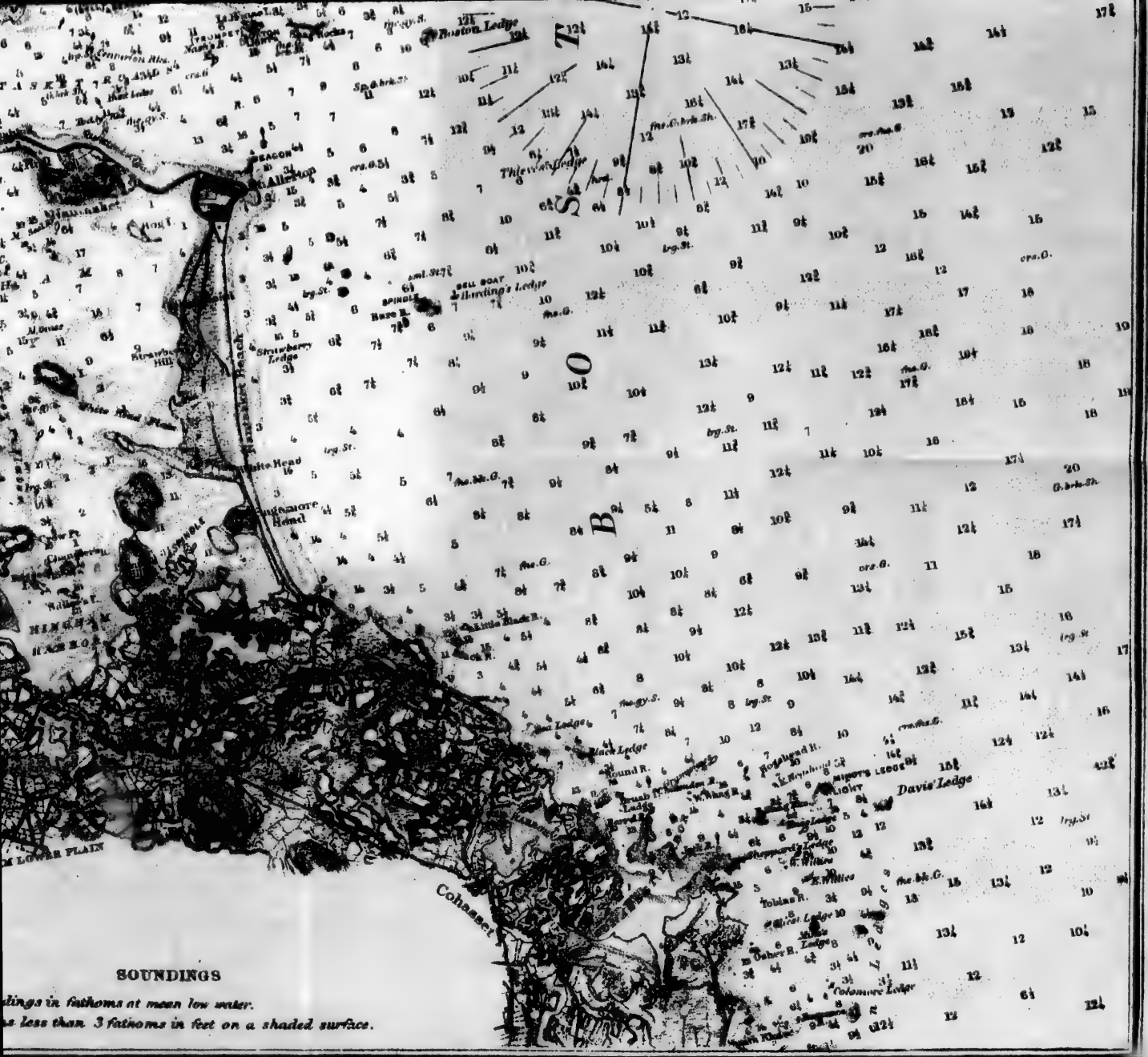
Scale 80,000

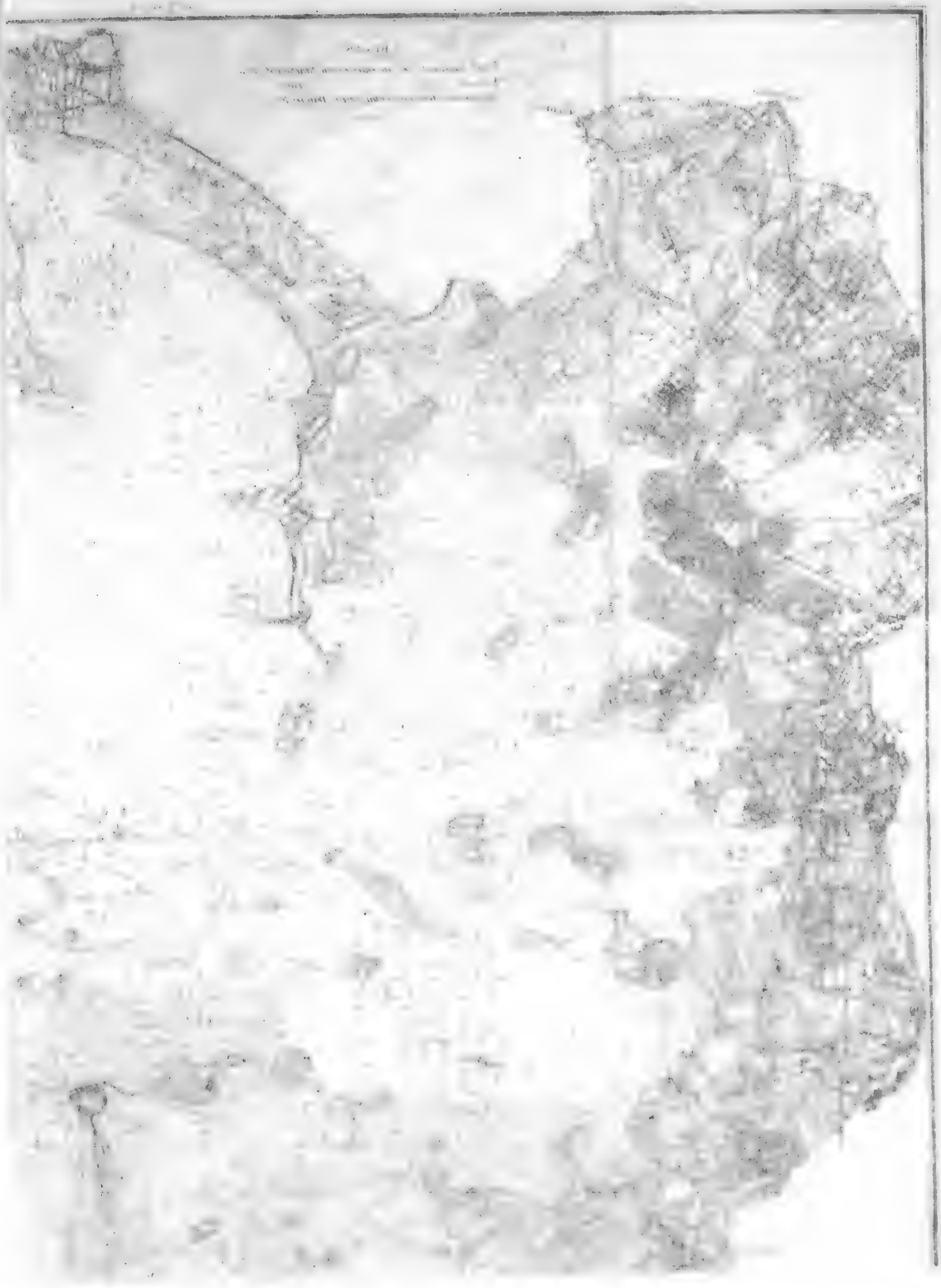
Nautical Miles

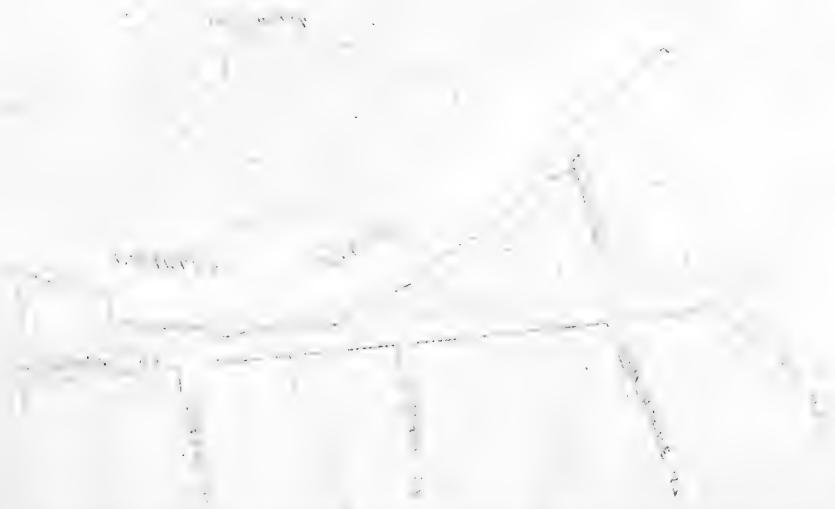
SOUNDI

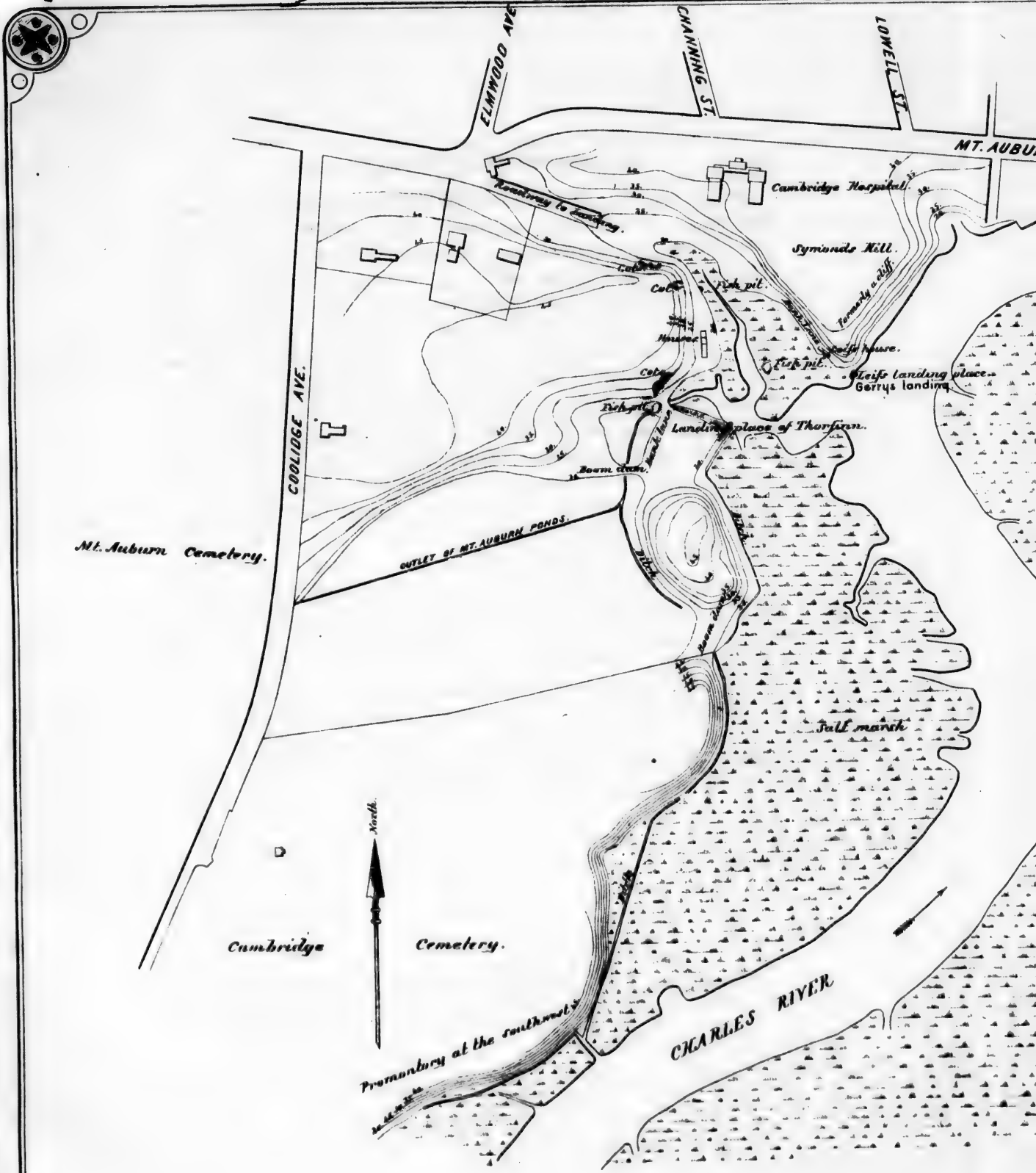
Soundings in fathoms at mean

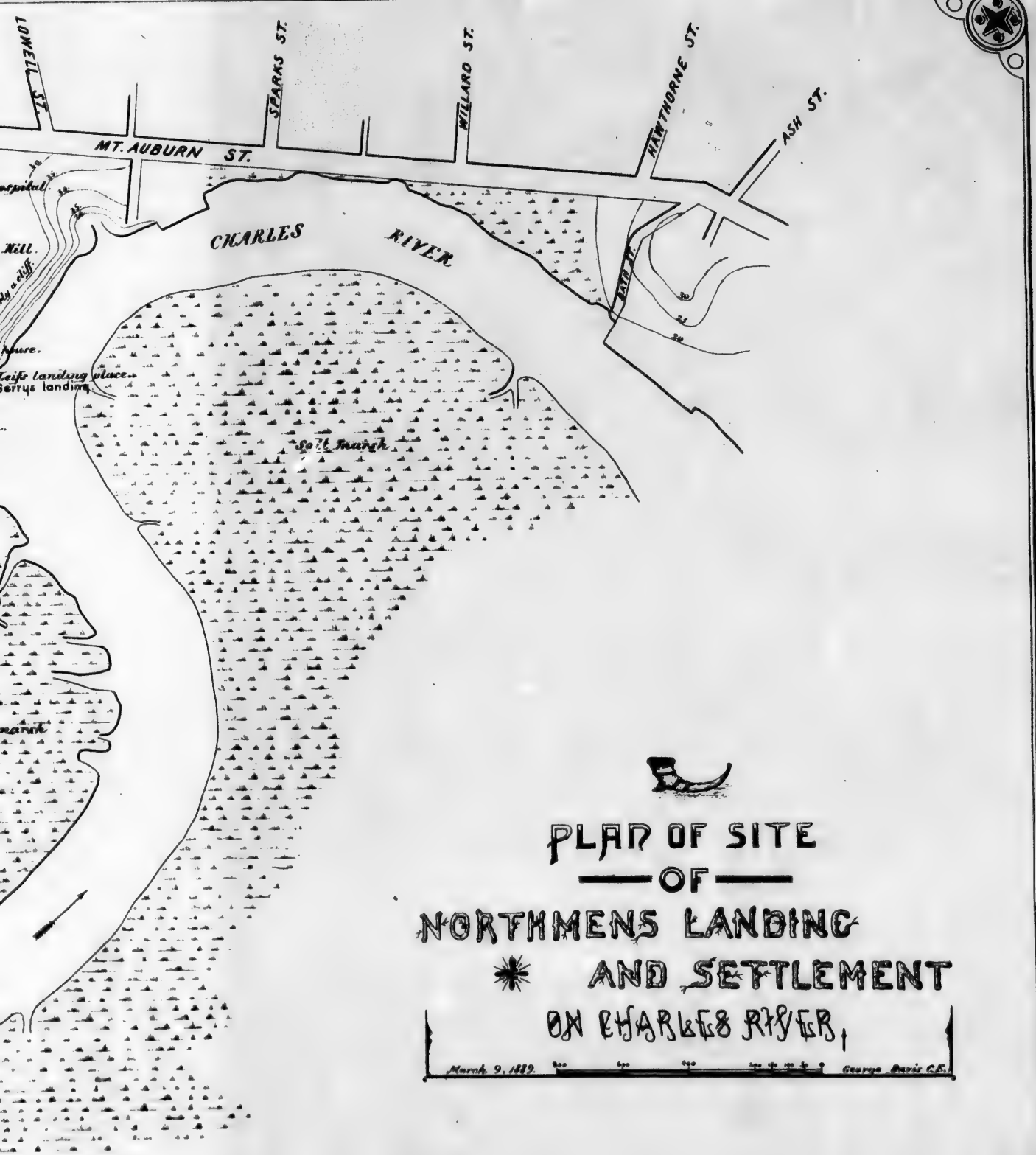
Depths less than 3 fathoms in


Boston Ledge
Thieves Ledge
Allerton
Strawberry Ledge
Nantasket Beach
Bumpmore Head
Davis' Ledge
Cohasset
SOUNDINGS
dings in fathoms at mean low water.
s less than 3 fathoms in feet on a shaded surface.





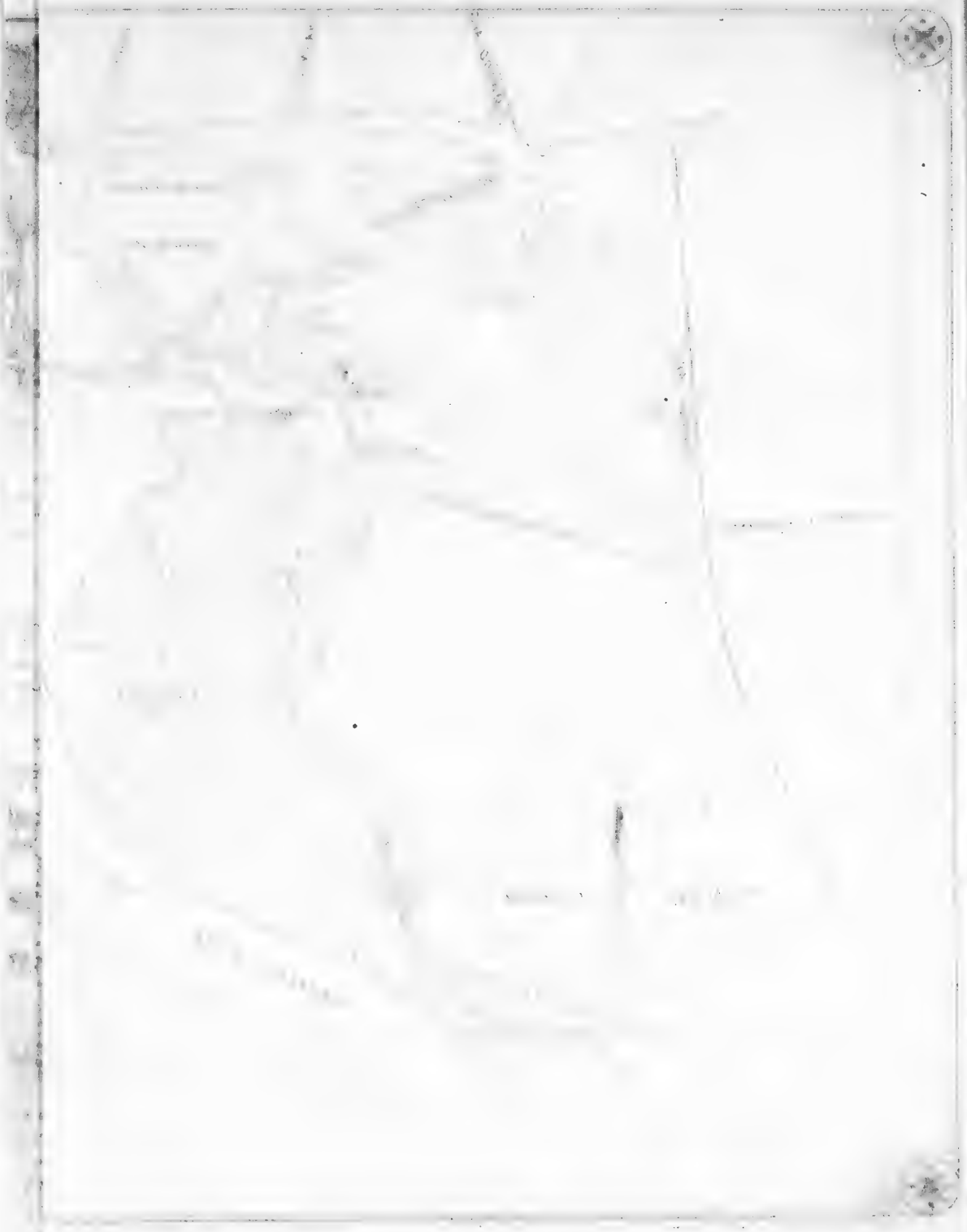

ELMWOOD AVE.
CHANNING ST.
LOWELL ST.
MT. AUBU
Roadway to Cambridge.
Cambridge Hospital.
Symmonds Hill.
formerly a cliff.
Fish pil.
Fish pil.
Leifs house.
Leifs landing place.
Gerrys landing
Landing place of Thorfinn.
COOLIDGE AVE.
Mt. Auburn Cemetery.
OUTLET OF MT. AUBURN PONDS.
Salt marsh
North.
Cambridge Cemetery.
Promontory at the southwest
CHARLES RIVER



PLAN OF SITE
OF
NORTHMENS LANDING
AND SETTLEMENT
ON CHARLES RIVER.

March 9, 1889. George Davis C.E.

HELIOTYPE PRINTING CO.



places three quarters of a mile wide, left as the salt water retreated with the ebb. The vessel was a merchant ship, and had only a single square mainsail. It was in a narrow channel; they could not beat, and there was little or no use for oars. They had obviously no alternative but to yield to the current of the flood tide until they came to a practical landing-place. Why? Because the shore was constantly being swallowed up by the rising tide. Close study of the Coast Survey map of the lower Charles (above the bridge at the Cottage Farm Railway Station; that is, above the ancient Back Bay) will show, that, by reason of the meadow banks of mud, it was not till the vessel reached the ancient bluff of Symonds's hill that its occupants could go ashore. At this point the vessel could rest on an even keel at low tide. Here the mainland, thirty-five feet above high water, had been under-cut to become a cliff by the abrasion at flood and ebb of the outer curve of the current of the Charles. At the west end of the bluff was eligible landing and building ground. Here, and here only, is where the river flows from the *southeast* to the *northwest*, as required by the Sagas, — directly toward the end of the bluff, the site of Leif's houses, as remarked by Thorfinn. It is the only point on the river to which the language of the Sagas fits. From there could be seen the promontory at the south and southwest, from beyond which the river issued bearing its fleet of Skraeling canoes, and behind which to the southwest they later retired, as related in Thorfinn's Saga.[1] There is the only landing-place where Thorfinn could have gone ashore on the southwest bank, as viewed from Leif's houses.

The Coast Survey map shows the first spot where a plank could reach from the deck of the vessel to solid land above tide-water. A glance will show — as a personal exploration by boat would bring vividly before a student — the first spot where Leif's vessel could have laid in the water and also against the bank at all tides.[2]

[1] See large folded map of the Charles and Cambridge given herewith.

[2] That there is no point lower down where a landing could have been made was well illustrated by a lad, who frequently in his canoe rowed up the river: when told the story of the

Nor is there any point above for a considerable distance where landing from a vessel's deck is possible, — certainly none below the Winchester Place, the present western bounds of the Cambridge City cemetery, nearly a mile away along the river. Why? Because the meadow and its soft, abrupt muddy banks lie between the immediate water of the river and the higher solid land; and here there is the fatal condition that the river flows from the west instead of from the southeast. So far, the demonstration is one resting on the doctrine of exclusions.

Nevertheless, the positive determination of the exact point where Leif built his houses cannot be established from the Saga of Erik the Red alone. We have found the first point where Leif could have gone ashore and laid his ship; but the absolute conviction which adequate evidence gives as to the precise site of Leif's houses rests upon evidence which is found in other Sagas.

Thorfinn came several years later directly to Leif's houses, and occupied them during the three years that he was in Vineland. Certain incidents occurring during his stay were recorded in the Sagas. Others occurred during the stay of Freydis, who also dwelt at Leif's houses. These incidents bear upon the topography, hydrography, and relative position of prominent points, — as of the houses, the landing-places, the fish-pits, the promontory, the rocks above half-tide, — which, it will be clearly seen, establish that *one spot only*, and that but a few rods square, could have been the site of Leif's houses. It rests on the form of demonstration that any alternative is absurd.

To illustrate these incidents, it has seemed to me better to present the required features on a skeleton map of absolute accuracy, — a detailed Coast Survey map[1] of the Charles River, — in connection with a

Saga, he responded that the first spot where Leif *could* have landed was the bluff known as Symonds's hill. There are, it is true, a few yards of sloping hard shore at the south end of the Brookline Bridge, but not eligible, because the varying line of the shore would not permit the vessel at all tides to lie *in the water*, or on even keel, and at the same time be accessible from the shore.

[1] Coast Survey map, not before printed, supplied to me by the City Engineer. Also Davis's chart.

LEIF'S HOUSE NEAR STONE WALL BY TREE
THORFINN'S HOUSE IN FOREGROUND
FISH PIT OVER SHRUBBERY.

map of the shores produced from recent actual survey; also numerous photographs.

The photograph facing the titlepage gives Thorfinn's landing-place, on the southwest bank, on the return from the search for Thorhall, on the branch stream, at the extreme right; the promontory, from beyond which at the south the river issues; the course of the river from the southeast to the northwest; one of four fish-pits, and the traces near it of the remains of Leif's principal house; also the course of the river below, past the rocks, — all on three combined photographs, making a continuous whole.

Let us remember that Thevet had described the elbow at Nantasket, given its latitude, 42° 14′, and recorded the Irocois name, — Aiayascon (which means the human arm), our Nantasket; that Champlain found and left the name Yrocois on the Charles; that Verrazano had described the outer and inner harbor (the Back Bay), and had given the estimated rise and fall of the tide at the mouth of the river, and found it eight feet. This point could not have been *south* of Cape Cod, as beyond Monomoy the average tide is from three to four feet.

Allefonsce and Thevet had described the rocks and islands off the mouth of Boston Harbor and Charles River as in the forty-third degree. Thorfinn's Saga had mentioned, as already referred to, the islands before the mouth of the river, — the "Muchas Islas" and "Lagus Islas" of so many later maps, and also recalled in the "Port aux Isles" of Champlain. Thevet, Allefonsce, and Verrazano had found the river having the same name, Norumbega.[1] The forty-third was the degree in which Ogilby placed Norumbega. Verrazano and Thevet, Gastaldi and Ruscelli and Buno, had placed the Refugio, Paradiso, and Flora between Cape Breton (Cape Ann) and the mouth of the Norumbega River (the Charles).

The name Norumbega, with dialectic modification, applied, according to Thevet and Allefonsce and Solis, and a great number of maps of

[1] Thevet says Norumbegue, "marked on some charts as the Rio Grande." — KOHL.

the sixteenth century, not only to the river, but also to a city, of which the conventional device was given on the maps at a short distance up the river from the lake, less than three miles above the site of Leif's houses. This lake (the Back Bay at flood tide) was called by Thorfinn "Hóp," which is icelandic for a "small land-locked bay, salt at flood tide and fresh at ebb," and which is the wonderfully perfect description of the ancient Boston Back Bay, including the meadows submerged at high tide. Verrazano and Ulpius saw the "*Norman Villa*" at the site of Leif's houses on the Charles, looking out on the meadows. The "Hóp" of Thorfinn (the Back Bay) was described by Verrazano as "a small lake, some three leagues around, among numerous small hills," — Tremont, Copp's, Bunker, Breed's, Winter, Corey's, Mt. Auburn, etc.

The lesser chart, on which are indicated the sites of the fish-pits, the dwellings, and the topography incidentally described, requires only the careful reading of the Saga (which I have had newly translated from Peringskjöld and printed in the Appendix, and with it sections from the so-called Thorfinn's Sagas) to enable one to see where Leif landed, where later he built his houses, and where he passed his only winter in Vineland; the spot where Thorwald came, and from which rowing westward he explored the Charles, through its shallows and its islands; the spot to which, after the shipwreck at Kjalarnes (Cape Cod), and the burial of their leader on the Gurnet, his crew returned to pass the winter, and in the spring following to bear the heavy tidings home to Leif at Brattahlid. To this spot later came Thorfinn and Gudrid, and with them the households — men and women — and equipment for founding a colony. Here Snorri was born. From here went out the expedition under Thorfinn along the Scituate beach, and past the Gurnet, and across the entrance to Cape Cod Bay, around the long curve east and south of Cape Cod, to Nauset Harbor southward, and then to the next harbor farther south on the east face of the peninsula, and the quarters at Chatham against Straumö and Straumfjörd, — the region of the junction

Landing Place of Thorfinn on return from seeking Thorhall, at the left of two stumps in front of excavation at the right of white area. Fish Pit before white area. "Promontory at the South West" near fallen tree and cedar.

Fish Pit on line of stream from the high lands of Mt. Auburn Cemetery, in centre. Corner of remains of Thorfinn's long house at left foreground. Site of two huts on the right above the roadway.

Site of hut in hill side. Trace of outline of one corner of Leaf's House in foreground

Site of two huts and terrace in front

with the mainland of the sandspit of Monomoy; the region of the Old Stage Harbor and Champlain's collision (six hundred years later) with the natives, some of them of Norse blood (as found by the Pilgrims in 1620); the region beyond which southward Thorfinn *did not go*.[1] From this expedition Thorfinn sailed northward along the Furdustrand and westward, at length returning to Leif's houses, after seeking in vain to find Thorhall. Here, too, came Freydis and the ill-fated Helge and Finbogi, and their crews and women. Here was the site indicated by Verrazano of the Norman Villa, which, renewed by successors to Thorfinn, may have held Leif's house still standing in 1524.

I have selected from many photographs one showing the inequalities of the surface at the site of Leif's house before the grass had started in the spring; and another of a larger house, the building of which I have ascribed to Thorfinn, for reasons which careful study of the Sagas and the locality will enable any reader to see for himself. Near them are the fish-pits, and the only ship-landing place meeting the special requirements of the Sagas. It is solid earth in the midst of marsh at the southwest of Leif's house and on the southwest bank. There is *but one such spot*. Near it are the traces of one hut in the side hill; and there are also traces of what may have been several others, referred to in the Sagas. I introduce several photographs of the region. The photograph against the titlepage should be studied, and also the charts of the river, — particularly the large one of Cambridge, and that smaller one of the region of Gerry's Landing.

After the death of Leif's father, and of the brothers Thorstein and Thorwald, Thorfinn came to Greenland, where he was received by Leif, who had succeeded to his father's estates and prerogatives as well as to his name, — Eirik. It was to the heir Eirik, or Erik,[2] to whom Gudrid

[1] See Stephanius in Saga Time.

[2] The Hauks-bok Saga uniformly speaks of Leif as Erik. See Reeves's translation of original, 1890. "Vineland det Gothe."

referred the wealthy nobleman Thorfinn who sued for her hand; and it was in the paternal mansion which Leif had inherited that her nuptials were celebrated.

It was the consent of Leif which Thorfinn secured, to occupy the house which Leif had built in the Vineland he discovered and owned, and the country which, in keeping with the generally prevailing notion, he regarded as an island (see Adam of Bremen), and which seems — by Northmen, at least — to have been recognized as Leif's, — that is, Erik's. That this claim was recognized by his successors will be obvious to the careful student.

I have added a series of maps, from Stephanius down to and including the Coast Survey, to enable such as care to read somewhat more of the evidence for themselves to gratify their wish.

That Carenas (Kjalarnes = Cape Cod), Krossaness (the Gurnet), Port aux Isles (Cohasset), Vingaert's Eylan (Vineland), the valley of the Charles against Cambridge, Nantasket, and the Archipelago of Boston Harbor, are to be found in the region ascribed to the site of Leif's houses may be supplemented by one further important branch of evidence. Properly to weigh this evidence requires a little patience. We need some knowledge of the social life of Iceland. Let us try to place ourselves in a position to understand it.

All who followed Leif from Brattahlid in Greenland came to Leif's Houses.

First of them in point of time was Thorwald.

"Thorwald, Leif's brother, two years after Leif's return, upon consultation with Leif, made ready for his voyage, and put to sea. Nothing is said of their expedition until *they came to Leif's houses.*"

Thorfinn, with his expedition of three or more vessels and one hundred and sixty souls, of whom seven were women, came — with at least the part of the fleet which contained his wife Gudrid, the women of the colony,

Bjarni Grimolfson, and the larger part of the company — *directly to Leif's houses*, and built additional houses.

Freydis in the joint expedition with Helge and Finnbogi *came directly to Leif's houses*.

What a fortunate circumstance that there were so many of Norse blood and habits resident, successively, in the same houses! They must have looked out on the same landscape, fished from the same banks, rowed on the same river, had more or less common experiences. Their narrations must have some qualities in common. In a certain sense they must be like the Gospels, — they must be repetitions. The student of the Sagas appreciates this, and it helps and guards his judgment.

All that is recorded as having been seen about the residence of Leif in Vineland, whether by him or his brother Thorwald, or by Thorfinn or Gudrid or Freydis; all that is said of houses, some nearer to the water and some farther away; of fish-pits in which the fish were taken in the spawning season; of the collection of maser wood, the canals for transporting it, and the cliff on which it was piled to dry; of the points of compass, as the river flowing toward the house, from southeast to northwest; of the Skraelings issuing in canoes from behind the promontory at the south; of the landing by Thorfinn, on his return from seeking Thorhall, on the southwest bank of the tributary stream; of the small land-locked bay, the Hóp; of the tides alternate salt and fresh water; of the collisions and the flag of truce (the whole shield); of the newly-planted corn; of grapes and their gathering; of the dairy and its products; of the furs and salmon-fishing; and of much more of the topography and the life in Vineland, — all help to make identification of the site of the house certain. The variety of the sources of evidence and the extent of its accumulation help us to see how impossible it is to conceive of two localities agreeing with each other in so many features.

When I predicted, at a scientific gathering, that Leif's houses once occupied a specific locality of limited extent, I had not recently been at

the place, nor did I for more than a year thereafter visit it, as it had not occurred to me that the traces of wooden dwelling-houses could have been so long preserved. So it happened that in finding, as soon as I looked for them, the outlines of the foundations of houses, the fish-pits, and the extraordinary topographical features required by the Sagas, I had the satisfaction of looking upon what might be regarded as the fulfilment of my own predictions, — that is, my deductions from the Vineland Sagas (the ships' logs) applied to the charts of the Coast Survey. These had given me the precise spot of Leif's houses on a north and south coast, which gave me, on the maps, the latitude. It remained to compare this with the evidence, in Leif's observation, as to the length of the shortest day in Vineland. This topic has been discussed at some length on pages 21–23; but its great significance and consequent importance, and the respect due to difference of opinion, justify additional consideration.

Latitude of Vineland.

Leif had remarked that on the shortest day of the year in Vineland they had the sun at Eyktarstad and at Dagmalastad. It was a striking fact which everybody knew was impossible to experience in Greenland or Iceland. It was early seen that this observation held the key to the latitude of Vineland.

Eykt was an established meal in Iceland: a lunch between dinner and supper; and *dagmal* was breakfast, — the last as distant, before noon, from the midday meal, as the first was, in the afternoon. These times — *dagmal* and *eykt* — fell at sunrise and sunset in Vineland on December 21. As they were points of time equi-distant from midday, if one could know the true time when *eykt* occurred at sunset, at a given place, he would know the length of the shortest day of the year *at that place*. If one knows the length of the shortest day of the year at a given place, a little calculation gives him the latitude. How was this time found out?

It happened once that Snorri Sturleson, the great poet and historian of Iceland, observed and left on record that *eykt* occurred at his residence — Reykholt — on the opening day of winter; that is, on the first Saturday between the 11th and the 17th of October.

To know, then, the time of *eykt*, it was only necessary to know at what hour and minute sunset took place at Snorri's residence on the opening day of the Icelandic winter, about the 15th of October. The enlightened King of Denmark, made aware of this, directed Thorlacius, an astronomer, to determine by careful observation the exact time of sunset on this day at Reykholt.

It was found to be at half-past four. This was the moment of *eykt*. An event occurring at *eykt* occurred at half-past four in the afternoon.

This four hours and a half before sunset in the afternoon, with as much more after sunrise in the forenoon, gave the total length of the day as nine hours, wherever sunset and *eykt* might be coincident in time.

Leif's observation gave to Rafn the length of the shortest day, as observed in Vineland. It rested, we see, on the astronomical observation of Thorlacius. It gave the site of Leif's houses, according to Rafn, near Newport, on the shore of Narragansett Bay.

But, somewhat unhappily for this result, it was later found that the time of the lunch in Norway, called *eykt*, was not everywhere at the same time. It varied with the latitude and the prevailing habits of the people. At Bjornsen's home in Gudbrandsdal it is the meal taken at about five. I found it farther south, in Christiania, half an hour later; and north of Trondhjem it is said by Vigfussen to be at half-past three. At Snorri's mansion in Iceland it was at half-past four.

This irregularity in Norway led Professor Storm, of the University of Christiania, to the conclusion that *eykt* as a *point of time* was variable, and must be given up as a factor in determining the latitude of Vineland. *Eykt*, he reasoned, must be regarded as an *hour* ending at half-past four. This view had a measure of support in the ecclesiastical ordinances of Iceland.

I have been led to another conclusion.

The fact that Snorri records the coincident occurrence of *eykt* and of sunset carries in it the point of moment; to wit, that one of the two factors was *variable* in its time. The other was uniform in its time. *Eykt*, at Reykholt, as time was constant. Sunset as time was variable. Sunset is a *point*, not an hour.

Why was *eykt* constant? *Eykt* was a lunch, the time of taking which was fixed by a *human want*. The time for this meal, like the moment of midday, for obvious domestic and social reasons, — such as economy of time, the keeping of appointments, the needs of cattle and sheep in feeding and watering, of herdsmen and shepherds, — must be the *same* in the *same general latitude* throughout considerable districts. The convenient and successful pursuit of the chief avocations, — such as attendance at school, on public gatherings, grazing, farming, fishing, domestic duties, and economies, etc., — made it desirable. The habit would become exacting, all the more with a people who from necessity are constantly employed, and therefore have no time to be wasted in the needless overlapping of engagements. Habits acquired in early life are broken up with difficulty in later years. The Rev. Dr. Henderson, the missionary to Iceland in 1813 and 1814, says the habits and customs of the people have remained unchanged for nine hundred years.

Half-past four as *eykt* was a period, or brief interval, for a hurried meal as well known as twelve, or noon, at Reykholt.

The farmers, the shepherds, the fishermen, the mothers, the children, in the general latitude of Reykholt, a few leagues only from Reykavik the present capital, on the one hand, and less from Skalholt the great school, on the other, would all obey the same *eykt*. So it came about that when Eirik Raude gathered his ships and their crews in Breidafjord, and departed from Schnefelsness, within the same degree of latitude as Reykholt, for Gunniborn's Island and Greenland, they took with them the lifelong habit of a lunch at half-past four. As a matter of habit, the lunch and the time of it were *coupled* in their minds and their

wants. They needed the lunch at half-past four as distinctly as they felt the want of the midday meal at twelve. *Eykt* meant half-past four, as midday meant twelve. It was *Eyktar-stad.*

This habit had become a second nature, which they kept up because of its being a part of an organism, and arranged all their appointments to meet it in Greenland, somewhat farther south. The boy Leif when he went with his father had the habit. When, fifteen years later, to manhood grown, he bought Bjarni's ship and manned it with thirty-five sailors, he found a body of men who had lived in the habit of a lunch at half-past four, and needed it; and when they all reached Vineland, they found it convenient — indeed necessary — to observe the hour of 4:30 for *eykt*, the AFTERNOON LUNCH.

There was only one day in the whole year in Vineland, in which there was a shade less of light at the breakfast and at the afternoon meal.

The *inflexibility of habit* preserved for us the time of its sunset, and with it the length of the shortest day, in Vineland.

THE LENGTH OF THE SHORTEST DAY OF THE YEAR AT LEIF'S HOUSES IN VINELAND.

In addition to what has already been said as to how the length of the shortest day of the year came to have such significance, I give the following.

Autumn lasts till the sun sets in Eyktarstadr; winter till the (vernal) equinox; spring till the May "moving days;" summer till the autumnal equinox (Snorri). On this, Paul Vidalin, and after him Bishop Finn Jónson, assuming that the beginning of winter corresponds with that of the Icelandic calendar, — the work between the 11th and the 17th of October, as the sun sets on the 17th of October at 4:30 at Reykholt, the residence of Snorri, — Eyktarstadr was inferred to be 4:30 P.M.; thus making, Storm suggests, *eykt* the *hour* between 3:30 and 4:30.

This is on the notion that *eykt* referred to an hour and not to a point of time at the end of the hour.

With the idea that the term referred to an hour, it was found that while the beginning of the region of nine hours for the shortest day would be, as given by Rafn, in the region of Newport, the point of exactly eight hours for

the shortest day would be found north of the latitude of St. John's, Newfoundland (more strictly at 49° 55′).

The region throughout which the length of the shortest day (December 21) would be between nine hours and eight hours would include Nova Scotia near its northern limits.

The determination of the latitude of a shortest day of nine hours, as given by Rafn, was 41° 24′ 10″.

This, revised by Professor Bugge of Copenhagen, gave 41° 22′.

Mr. Geelmuyden, observing that neither the effect of the precession of the equinoxes nor that of refraction had been taken into account by Professor Bugge, revised his solution and gave, as published in Professor Storm's paper, the latitude of the shortest day of the year nine hundred years ago as "42° 21′" (about that of Boston).[1]

The late Mr. Arthur Wellington Reeves requested Captain Phythian, Superintendent of the United States Naval Observatory at Washington, to repeat the calculation of Mr. Geelmuyden. Their results alike made the beginning in a shortest day of eight hours, — that is, the northernmost point where Leif could have passed his winter, — somewhere not north of about 49°. It might be farther south. Professor Storm has sought evidence in natural history to prove that Vineland was Nova Scotia.

I add from Professor Storm's paper the extract from Mr. Geelmuyden's communication: —

"Utsudrsaett being the octant of the horizon that has the southwest midward, accordingly between 22.5° and 67.5° azimuth, eyktarstadr will be in the direction 22.5° plus ⅔.45° equals 52.5° from south to west. Now, computing the latitude where the sun sets in this direction on the shortest day of the year (11th century) we get 49° 55′. Here, therefore, or further south, the observation [of Leif] must needs have been taken."

Captain Phythian says: —

"As the solution of the question you propose depends of course upon the interpretation of the data furnished, it is necessary that I should give in detail the process by which the amplitude of the sun is derived from the statement contained in your letter.

"*Eyktarstadr* is assumed to be the position of the sun in the horizon when setting. The southwest octant you define [Mr. Reeves had quoted Geelmuyden] to be the octant having S. W. as to its centre; its limits, therefore, are S. 22½° W. and S. 67½° W.

[1] A year before the appearance of Professor Storm's paper I had pointed out, in a communication before a scientific society, within a few hundred feet, the site of Leif's houses, as indicated in the Sagas. A year and a half later I went to look for, and found, the traces of houses where I had predicted they would be found. I found the latitude of the site from the Coast Survey to be 42° 22′ 20″. Miss Pendleton took the determined latitude of the College Observatory, half a mile north of the site of Leif's houses.

"It is *eykt* when the southwest octant having been divided into thirds, the sun has traversed two of these and has one still to go. That is, it is *eykt* when the point of the horizon is 30° west of S. 22½° W. or S. 52½° W. From this the sun's amplitude when in the point of the horizon is W. 37° 30′ S.

"The sun's declination on the shortest day of the year 1015 was S. 23° 34′ 30″ (nearly).

"The simple formula for finding the sun's amplitude when in the true horizon is sufficiently accurate for the conditions of the case.

"It is Sin A = Sin du sec. L; from which sec. L = Sin A co sec. d.

"Solving with above data, —

A = — 37° 30′	log. sin. — 9.78445
d = — 23° 34′ 30″	log. co sec. 0.39799
L = + 48° 56′	log. sec. + 0.182.44

"By this method, calling the refraction 33′, we find the latitude to be 49° 50.2′.

. . . . . .

"The data furnished are not sufficiently definite to warrant a more positive assertion than that the explorers [Leif's party in 1000] could not have been, when the record was made, farther north than Lat. (say) 49°."

Mr. Geelmuyden placed the point of *eykt*, — that is, 4:30 P. M., — where the shortest day was nine hours long, in latitude 42° 21′, — the latitude of Boston.

Captain Phythian, on the notion that *eykt* to Leif was an hour ending at 4.30 P. M., found the extreme northern limits of the region which the terms of the Sagas could be made to include at 49°, — the upper part of Newfoundland, but excluding Labrador.

The Vineland Sagas and log-books had conducted me, independently of the bearing of the length of the shortest day in the year in Vineland, to the site of Leif's houses, where he passed the winter of 1000–1001, the latitude of which the Coast Survey gave as 42° 22′ 20″. In this latitude the Saga had said the day was nine hours long.

To test my reasoning from the ships' logs, I submitted to the Assistant-Professor of Mathematics at Wellesley College, Miss Ellen F. Pendleton, the following question: *What was the length of the shortest day of the year* 890 *years ago, in latitude* 42° 22′ 20″?

To this request Miss Pendleton sent the following reply, taking as absolutely determined the latitude of the Cambridge Observatory, 42° 22′ 48″, which is within a few feet of half a mile nearly due north from the traces of Leif's houses.

"To find the length of the day in any latitude, we have simply to calculate the hour angle P, for sunrise, in the $Z.P.S.$ triangle, by means of the well-known formula, —

$$\text{Sin } \tfrac{1}{2} \text{ P} = \left(\frac{\text{Sin } \tfrac{1}{2} [\zeta + (\phi - \delta)] \text{ Sin } \tfrac{1}{2} [\zeta - (\phi - \delta)]}{\cos \phi \cos \delta} \right)^{\frac{1}{2}}$$

where ϕ is the latitude, δ the declination of the sun, and ζ the zenith distance of the sun. For the *shortest* day of the year 1000 A. D. in the latitude of Cambridge, Mass., we have the following data: —

$\phi = 42° \; 22' \; 48.3''$, the latitude of Cambridge Observatory (Mass.),
$\zeta = 90° + 16'$ (the mean semi-diameter of the sun)
$+ 34'$ (the mean refraction at the horizon),
$= 90° \; 50'$.
$\delta = - 23° \; 34' \; 25.15''$ [1]

"Hence we have —

log sin ½ $[\zeta + (\phi - \delta)]$	$= 9.9910278$
log sin ½ $[\zeta - (\phi - \delta)]$	$= 9.3332732$
log cos ϕ	$= 9.8684621$
log cos δ	$= 9.9621546$
log sin ½ P	$= 9.7468421$
$\therefore$ ½ P	$= 33° \; 56' \; 9.78''$

and $\frac{1}{15}$ of $2P = 9$ hr. 2 m. 58.6 sec., the length of the shortest day of the year 1000 A. D., in the latitude of Cambridge, Mass."

It will be seen that this coincides substantially with the time — nine hours — deduced from the observations of the astronomer Thorlacius, of the time of sunset at Reykholt, the residence of Snorri Sturleson, on the day of the opening winter; that is, the first Saturday that fell between the 11th and 17th days of October. This determination, at the instance of the King of Denmark, followed the remark of Snorri, — that on that day *eykt* occurred at his residence at sunset, — upon which, mainly, Rafn based his conception of the latitude of Vineland.

With the latitude fixed on our north and south coasts, there is nothing further required to determine the site of Leif's houses.

Near this site we find, besides what seem to be the traces of houses, the fish-pits, the topography, the relative positions, the climate,

[1] See Smithsonian Contributions to Knowledge, Vol. XVIII.

Two views near Lake of Woodstown

Bowen Run, upper Woodstown

the occasional mild winters, and the native fruits and grains mentioned as characteristic of Vineland in the Sagas of Leif and Thorfinn, and in the relation of Adam of Bremen.

Summary.

Thus have been brought into harmony the ancient geography of the North Atlantic, as shown on Stephanius's map, with the more recent on the Admiralty charts and the work of the United States Coast Survey; the records of sailing-time, and the directions in which the wind blew to Bjarni and to Leif; the coast lines and topography and their distinguishing features, described by one and recognized by the other; the story of Thorwald's broken keel set up at Kjalarnes as told in the Sagas, and the story as told on the *stone tablet* found in an ancient grave not far from Norman's Ö, across the bay from Cape Cod; the undercurrent of details murmuring through the Sagas of Erik the Red and Thorfinn Karlsefni, and the lesser strains of Thorwald and Thorhall, of Tyrker and Freydis, of Gudrid and Snorre Thorbrandsson, all in the same key; the story of the King of Denmark to Adam of Bremen of the Vineland of wine and cereals, and the stories of Leif and Thorfinn of the Vineland of grapes and corn; the furs of the Northmen and of the Breton French; the fish-pits and the sacred fish at the spawning season, and also the time of the young corn-plants; the pavements of Stony Brook and the fishway at Watertown, the ancient Norumbega on maps and in records from 1520 to 1634; the maps of Champlain and Lescarbot, with the relations of Purchas; the walls, docks, and wharves a league above Leif's houses, at the head of tide-water on the Charles; and lastly, the length of the shortest day of the year in Vineland, in terms which reveal its latitude and at the same time refer it to astronomical observation, — all these have been brought by research, mainly in the field, into harmony with one another, and with the conclusion that the Landfall of Leif was in the latitude of Boston, and his Vineland-home in the basin of Charles River in the State of Massachusetts.

What next of the Northmen?

It requires little knowledge of human nature to see that after the report brought home by Leif and Thorfinn of the attractiveness of the country, where grapes and corn grew without culture, and where the winters were not severe, others would repeat Thorfinn's effort at colonization; that in time these efforts would be successful; and that ultimately the people of Greenland would be transferred, as a whole, to the more attractive country. The Northmen coming down here would bring their language, and impress it more or less on localities, streams, bays, etc., and we might expect to find traces of these names still remaining.

Is it possible to find traces of the habits or the language of the Northmen in the Vineland to which Leif came?

It has been intimated in my preceding papers that the number of Northmen who came was large, and that to some extent they became merged in the native people. The drift of my immediately preceding paper — "The Defences of Norumbega" — is to show that Norumbega was a sea-port, from which considerable commerce was carried on, and that there were white people throughout the territory of New England. Of these white people, Peter Martyr, Herrera, Navarette, Verrazano, and Jacques Cartier have written. It is recorded of the whites that they had blue eyes and red hair, and that they maintained habits eminently characteristic of the Northmen. Among other things, they preserved their own ancient history in their families by recitation and song (by repeating Sagas). They kept tame deer, and made cheese from their milk. They maintained commerce in furs, fish, and choice wood.

Among them were *Saga-men*, — the *Sagamos* of Lescarbot, and the *Sagamores* of early New England history. They were the gifted talkers and leaders. The name of Red Jacket, the great Indian orator, was

ORTELIUS, 1570.

SOLIS 1598

BOTERO, 1603.

"They sailed long until they came to a river, which flowed from the land through a lake and passed into the sea." Thorfinn's Saga.

"The French diplomatists always remembered that Boston was built within the original limits of New France" (*Bancroft's History*, 2d edition, p. 24).

Saguoa-ha. It was sometimes written *Sago-ye-wah-ta*, — of which the phrase a *rousing orator* would be an idiomatic equivalent.[1]

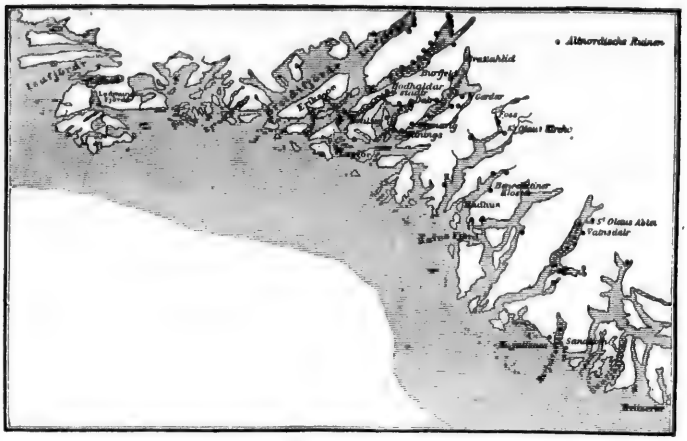
That *Sak* — Old Norse for Prince — and *Sachem* have a common root was recorded by Roger Williams.

The Narragansett tribe, among whom Williams lived and wrote, were the Wampanoags, the tribe of King Philip, and his father, Massasoit, the friend of the English. They were the people of Wampanakka, the Indian for "White-man's-land," — Huítra-manna-land, — of which land Thorfinn was told by the Skraeling boys. The people were described as dressed in long white gowns, and going in processions, bearing staves and banners, and shouting (chanting). The boys remembered the ceremonies which they had witnessed. These were evidences of the presence of missionaries of the Church.

To this class of reminiscences belong the stories of Ari-Marson and Bjorn Asbrandson, — perhaps also those of St. Brandan, and of St. Columba (see Gaffarel and Beauvois), the legends of the Basques, and of the white men encountered by Columbus in the West Indies. (See Irving and Herrera.)

My next paper will trace the connection between the Northmen and the name of the Western Continent. The name seems to have arisen in Vineland, which, in all its extension (see map, page 29), was regarded by the Northmen as a part of the *discovery* by Erik when he fell upon Greenland, in 982. The natives of Vineland could not easily utter "Eirikr" or "Æirekr" (Norse forms) without prefixing an *m*, — out of which, to the listener, arose "Em-erika" = AMERICA.

[1] *Sago got-he* (good talker) was the phrase among the Seneca Indians applied to a missionary



Map of Southern Point of Greenland from Hvitserker (Cape Farewell) Northwestward, including Eriksfjorder with Brattahlid (Erik's House) Eriksoe, and Numerous Settlements.
(From Danish Archives. Cronan, *Discovery of America.*)

APPENDIX.

A SUMMARY OF THE VINELAND SAGAS IN PERINGSKIÖLD'S EDITION OF THE HEIMSKRINGLA OF SNORRI STURLEYSON.

I.

Leif Erikson Baptized.

That summer [999 A. D., fifteen years after the settlement of Greenland], Leif the son of Eirik the Red came from Greenland to Norway. Leif visited King Olaf, was converted to Christianity, and remained that winter with the King.

Iceland Christianized.

But when King Olaf had nearly prepared his army for departure from Nidarós, he placed liensmen [retainers] over all Thrándheim's districts, shires, and provinces.

To Iceland he sent Gizur the White and Hjalti Skeggiason to advocate Christianity; and with them he sent a priest named Thormod and other ordained men. But he retained as hostages four Icelanders, whom he deemed the noblest; namely, Kjartan Olafsson, Halldor Gudmundsson, Kolbein Thordarsson, and Sverting Runolfsson. But out of Gizur's and Hjalti's travels it remains for me to relate, that they reached Iceland before the Althing met;[1] that they went to the Assembly, and that Christianity was at that Althing legally adopted in Iceland, and that summer every man was baptized.

Greenland Christianized.

During the same summer [A. D. 1000] King Olaf sent Leif Eiriksson to Greenland. On the sea he picked up a crew who lay on a ship's wreck and were helpless. And then he found Vineland the Fair, and came that summer to Greenland, bringing with him a priest and preachers, and went to his father at Brattahlid. After that he was called "Leif the Lucky." But his father said it was about even, — that he had saved a crew at sea, and brought a juggler [so he called the priest] to land.

II.

Bjarni Herjulfsson's Voyage.

Herjulf was the son of Bard Herjulfsson, a relative of Ingolf the Colonist.[2] To him Herjulf Ingolf had given the land between Vog and Reykjanes. Herjulf dwelt first at Drepstokk. His wife was named Thorgerd; but their son, Bjarni. He was a man of great promise. When quite young, he longed to go abroad, and soon acquired both wealth and distinction, and passed the winters abroad and with his father alternately.

It was not long before Bjarni owned a trading-vessel. But the last winter he was in Norway, his father, Herjulf, disposed of his farm and went to Greenland with Eirik. Along with Herjulf was a Saxon,[3] a Christian, — the same who composed Hafgerdinga Lay [The Song of the Tempest]. In it occurs the following stanza, the forty-ninth: —

[1] *Althing*, the general assembly of the Icelandic Commonwealth. There the priestly magistrates (*godar*) and other chiefs (*höfdingjar*) met every year to enact laws and administer justice. During the first sixty-six [years] of the colonization period (*landnáms tid*) there was no Althing, but the leading men held their meetings at Kialarnes, in the south of Iceland. The Althing was inaugurated in 930 A. D., and was held every year at Thingvellir, [illegible] from Reykjavik. Then there was no Althing until 1843; but since then, the modern Althing [illegible] at Reykjavik.

[2] Ingolf, a Norwegian chief, was the first Scandinavian colonist in Iceland; settled there in 874 A. D., and took [illegible] where now stands Reykjavik, the capital of Iceland.

[3] [illegible] Saxi = "a man from the south;" a Saxon or German. Rafn: *Sudrevskr*, a man from the Hebrides.

"God of earth and God of heaven,
Guard thy servants [1] on their journeys;
To the land of lofty mountains
Lead us safely, I implore thee."

Herjulf abode at Herjulfsness, and was held in the highest esteem; [2] but Eirik the Red abode at Brattahlid, and was there very highly honored, and by all respected.[2]

These were Eirik's sons: Leif, Thorvald, and Thorstein; but his daughter was called Freydis. She was married to a man named Thorvald, and dwelt at Gardar, which is now a bishop's seat. She was very imperious in temper [3] and avaricious; but Thorvald was a weakling.

The people of Greenland were then all heathen.

That summer Bjarni landed at Eyrar, his father having left in the spring. The news seemed to him grave tidings, and he would not unload his vessel. The sailors then asked him what he proposed doing. He replied that he would do as he was wont, and dwell with his father during the winter. "And," said Bjarni, "if ye will accompany me, I will sail for Greenland." All said they were willing to obey his orders. Then said Bjarni, "Rash will our voyage appear, since none of us has ever sailed the Greenland sea."

Nevertheless, they put out to sea as soon as they were ready, and sailed three days, until the land was out of sight; but then the fair wind fell, and north winds and fogs came upon them, and they knew not whither they went. And this lasted for many days.[4]

After that, they saw the sun, and then the directions [5] could be distinguished. They now hoisted sail, and sailed that day ere they saw land. They now discussed among themselves what country this could be, but Bjarni said he did not think it was Greenland. The sailors asked whether or not he would sail to land there. "My advice is," said Bjarni, "to sail close by the land." And they did so, and directly observed that the country was not mountainous, but had small hills, and was grown over with forest. They left the country on the larboard, and let the stern [6] of the ship look landward. They then sailed two days ere they saw another country. The sailors asked whether Bjarni supposed this was Greenland yet. He replied that he did not think this was Greenland, any more than the former country. "For," said he, "great glaciers are said to be in Greenland." Presently they neared land, and saw that it was level and wooded. Then the fair wind fell, and the sailors talked

[1] Literally, "thy monks."

[2] More literally, "became a great nobleman."

[3] Literally, "a great termagant."

[4] *Dægur* is here equivalent to the English word "day." In modern Icelandic *dægur* means only day *or* night, — that is, a duration of twelve hours; but in old Icelandic the word *dægur* signified both day *and* night, — that is, a duration of twenty-four hours; and that is the meaning here.

[5] That is, the quarters of the heavens.

[6] So Peringskjold; but Rafn reads, *lêtu skaut horfa á land*, — that is, "let the swelling sail look landward."

about that they thought it opportune to land there; but Bjarni would not. They claimed they needed both wood and water. "Of neither are ye ill supplied," said Bjarni. But for this he was somewhat blamed by his crew. He bade them hoist sail; and they did so, and turned the prow from land, and sailed seaward before a southwesterly wind for three days, and then saw the third country. But that country was high and mountainous,[1] and glaciers upon the mountains. The sailors asked if Bjarni would put in there.

But he replied, he would not. "For," said he, "this country seems to me uninviting." Now they lowered not the sail, but coasted along the country, and saw it was an island. Once more they put the ship about with stern towards land, and sailed seaward with the same wind as before. But the wind increased, and Bjarni bade them shorten, and not sail more than ship and tackle could bear safely. They now sailed four days, and then saw the fourth country. The crew then asked Bjarni whether he supposed this was Greenland. He replied: "This country is most like what I have been told of Greenland. Here let us make for land." They did so, and in the evening landed under a certain cape where a boat was found. But on that headland lived Bjarni's father Herjulf; and from that has the ness received its name, and been called Herjulfsness. Bjarni now went to his father, gave up sailing, and remained with him while he lived; and abode there after his father's death.

III.

Leif Erikson's Expedition.

The next thing to relate is, that Bjarni Herjulfsson came from Greenland to interview Earl Eirik, and was well received by him. Bjarni related his travels in which he had seen unknown countries. But he was counted negligent,[2] since he had nothing [from personal experience] to tell about those countries; and for this some blame was attached to him. Bjarni, however, joined the Earl's court, and the following summer went out to Greenland. There was now much talk about exploring expeditions.[3] Accordingly Leif Eiriksson from Brattahlid went to Bjarni Herjulfsson, bought his ship, and engaged a crew; so that they were thirty-five in all.

Leif then asked his father to take the sole command of the expedition: but Eirik excused himself, saying he was now growing old and less able to bear toil and exposure than formerly. Leif said that he would still bring more fortune in his train than any of his relatives. At last Eirik yielded to his request; and when they had made everything ready he rode from his home to the ship: and there was then but a short distance to go to the ship. But the horse which Eirik rode stumbled, and he fell off and injured his foot.

[1] *Jökull*, glacier, or deep snow remaining on the ground from year to year.

[2] More literally, "not inquiring or curious."

[3] *Landaleit*, land-search

Then said Eirik, "It is not decreed that I should discover more countries than this one we now inhabit; and farther shall we not together travel."

Eirik then returned to Brattahlid; but Leif went to his ship, and his companions, a crew of thirty-five, with him. In their company was a German, named Tyrkir. They then fitted out their ship, and when they were ready, sailed seaward.

They now found that country first which Bjarni had found last. There they stood in, cast anchor and put out a boat, and went ashore, but could see no grass [herbage]. Great glaciers covered the highlands, but it was as one flat rock from the sea to the glaciers. The country appeared to be utterly worthless.

Then said Leif: "The same thing has not happened to us which did to Bjarni, that we have not stepped ashore; and now I shall give this country a name, and call it Helluland [Flat-Rock land]."[1]

They then went to the ship, and put out to sea and found another country. They again sailed to land, cast anchor, put out a boat, and walked ashore. That country was level and wooded, and white sands in many places where they went, and not steep along the sea.

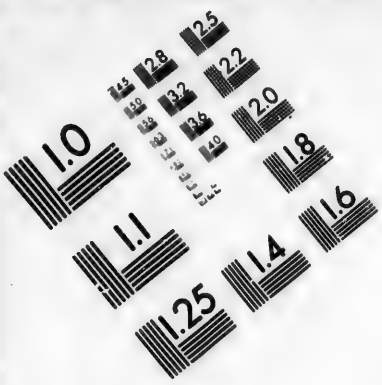
Then Leif said: "This country shall be named according to its qualities, Markland[2] [Woodland]."

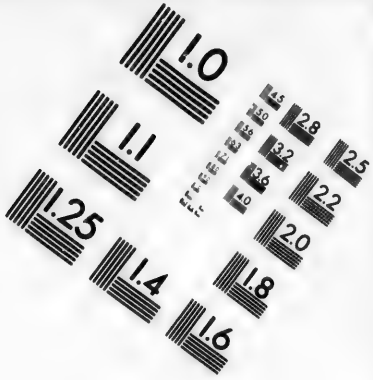
Then going down again to the ship as quickly as possible, they sailed seaward, and for two days they sailed with a northeasterly wind until they sighted land. They sailed to the country, and came to an island which lay to the north of the mainland, walked ashore there, and looked about in fine weather. They noticed that dew was on the grass, and happening to touch it with their hands and put it into their mouths thought they never had tasted anything so sweet as that. They then went to their ship, and sailed into that sound which lay between the island and the ness which jutted out north of the mainland, and steered westward past the ness. There great shallows extended at ebb tide, and then their ship stood aground, and then it appeared far from the vessel to the sea. But so eager were they to go ashore, that they could not wait until the sea should return to their ship, but leaped ashore where a river flowed out of a lake. But when the tide returned to their ship, then they took the boat and rowed to the ship, and it moved [floated] up into the river, and then into the lake. There they cast anchor, and carried their leathern hammocks[3] ashore, and made booths there. They then decided to dwell there during the winter, and erected there a large building. There was no lack of salmon, either in the lake or the river, and greater salmon they had never seen. But the quality of the country was so good according to what it seemed to them that live-stock would not need provender in winter. No frosts came there during the winter, and

[1] More literally, "Flagstone-land." *Hella*, a flatstone or flagstone.

[2] Margin of cultivated land. The name Cape St Mark is found in this region, on early maps.

[3] *Hadfat*, plural of *Hildfat*, a nautical term for "hammock." These hammocks were leather bags, and the sailors used to bring them ashore and keep them in the harbor-booths (Vigfusson)





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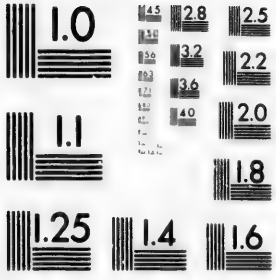

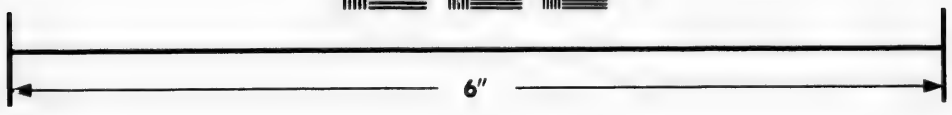

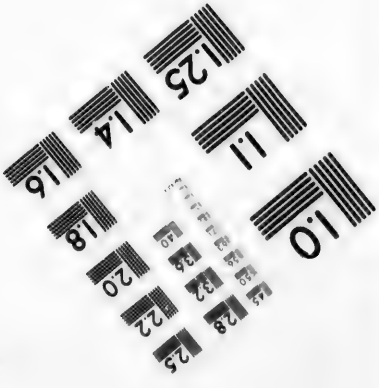

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herbage withered there but little. Day and night were there more even than in Greenland or Iceland, for on the shortest days[1] the sun had the place of eykt[2] and the place of dagmal.[3]

But when they had completed the building, Leif thus addressed his companions: "Now will I that our company be divided into two divisions, for I want to have this country explored. One division shall remain at home about the house,[4] the other examine land; but go no farther than that they may come home in the evening, and separate not."

For a while they did this. Leif alternately went with them or remained about the house. Leif was a large and strong man, of commanding presence, wise, and in all things moderate.

Leif stays in Vineland during that winter, then sails to Greenland and saves a castaway crew.

One evening it so happened that one of the crew was missing; it was Tyrkir the German. About this Leif was greatly troubled; for Tyrkir had been with him and his father for a long time, and had been very fond of Leif in his childhood. Leif accordingly greatly upbraided his companions, and prepared with twelve men to seek him. But when they had gone but a short distance from the house, Tyrkir walked towards them and was received with great joy. Leif directly observed that his foster-father was in good humor.

Tyrkir had a prominent forehead, twinkling eyes, a tiny face, was small of stature and insignificant in appearance, but well skilled in every handicraft.

Then Leif addressed him: "Why wert thou so late, my fosterer, and separate from the company?"

Tyrkir then spoke first a long while in German, and rolled his eyes about and made grimaces. But when they did not understand what he said, he after a while spoke in Norse, saying, "I did not go much farther than ye, yet I have some news to relate, for[5] I found wine-wood[6] and grapes."

"Can that be true, my fosterer?" said Leif.

"Certainly it is true," quoth Tyrkir, "for I was born in a country where neither wine-wood [vines] nor grapes were wanting."

They now slept over the night. But in the morning Leif said to his companions, "Now we shall carry on two occupations, each alternate days, — either gather grapes,

[1] *Skamdegi*, the shortest days in winter

[2] *Eyktar-stadr*, — that is, the place of *eykt*, or *eykt-mark*, at the time of the fifth watch; or afternoon lunch-time.

[3] *Dagmála-stadr*, the place of *dagmál*, or the third watch; the day meal mark, that is, breakfast-time. [With the time of *eykt*, at 4.30 P. M., as determined by Thorlacius at Reykholt; and *dagmal*, correspondingly far from noon, at 7.30 A M, the shortest day in Vineland was nine hours long, indicating a latitude of 42°+. — E. N. H.]

[4] *Skali* (*Shieling*), a hut; a shed; a rude temporary dwelling.

[5] *Því at*, "for;" wanting in Rafn.

[6] *Vínviðr*, — literally, "wine-wood;" grape-vines.

or cut vines and fell the forest, so that it may make a cargo for my ship;" and this plan was adopted. It is said that after the ship's boat had been loaded with grapes, a cargo [of wood] was cut for the ship. There also were fields[1] of wheat[2] growing wild[3] and certain trees called mösur;[4] and of all these things they took some samples with them. Some of the trees were used for building-timber. When spring came, they made ready and sailed away. Leif named this country, after its good qualities, Vineland [Wineland].

They then sailed seaward with a fair wind, till they saw Greenland and its ice-covered mountains.[5]

Then one of the men addressed Leif, saying, "Why steerest thou so in the teeth of the wind?"

"I attend to my helm," said Leif, "but yet to something more now. Tell me, what strange things can ye see?"

They replied that they could not see anything out of the common.

"I know not," said Leif, "whether I see a ship or a rock."

Presently they discerned it, and declared it was a rock. But he saw so much better than they that he could see men on the rock.

"Now will I," said Leif, "that we let the ship bite the wind so that we can reach these men, if they require our presence and have need of our assistance. But in case they are not peaceable, then we have everything in our own hands, and not they in theirs."

They now made for the rock and lowered [the sail] but little, cast anchor, and put out the second boat, which they had brought with them. Then Tyrkir inquired who was their leader. They replied that his name was Thórir, and that he was a Norwegian. "But," said he, "what is thy name?" Leif gave his name. "Art thou," said Thorir, "the son of Eirik the Red, from Brattahlid?" Leif said he was.

"And now will I," said Leif, "invite ye all on board my vessel, with such of your valuables as the ship can carry."

They accepted the offer, and then all sailed with this cargo to Eiriksfjord, until they came to Brattahlid, and unloaded the ship. Leif then invited Thórir and Gudrid his wife and three others to his house, but secured winter quarters for the rest of Thórir's crew and for his own companions.

[1] Wanting in Rafn, from "There also were fields," etc., to "building timber."

[2] So in all the manuscripts. *Hveiti*, — Modern Icelandic, *kveiti*; Danish, *kvede*; Swedish, *kvete*; German, *Weizen* (compare the adjective *hvítur*, "white;") — the name of a grain yielding white flour. [The Icelandic word in Thorfinn's Saga is *Aveitiax* (*ax* = ear-of-corn; *Aveiti-ax* is, literally, "white ear-of-corn"). Corn is a generic term in England, under which is included wheat as a cereal grain. Wheat was not known in America before Champlain, while Indian corn was indigenous. The Vineland discoverers would naturally give the name *Aveiti* to a new kind of grain yielding white flour, such as Indian corn. — E. N. H.]

[3] Literally, "self-sown."

[4] [*Mösurr*, m. Old High German, *masar*; Old English, *maser*. — E. N. H.]

[5] Literally, "mountains under snow."

Leif took fifteen men from the rock. After that he was called "Leif the Lucky."[1]

Leif now acquired both ample wealth and honor. That winter a great sickness broke out among Thórir's crew, and carried off Thórir and a great part of his company. That same winter also died Eirik the Red.

There was now great talk about Leif's expedition to Vineland; and to Thorvald his brother it seemed that too little of the country had been explored.

Then said Leif to Thorvald, "Take thou my ship, brother, if thou wilt, to Vineland; but yet I would have the ship first go after the timber which Thórir had on the rock."

That was done.

IV.

Thorwald Erikson's Expedition.

Of Thorvald, Leif's Brother, and the Skraelings in Vineland.

Now Thorvald prepared for this expedition, taking with him thirty men, according to his brother's advice. Then they fitted out their ship and sailed seaward; and there is no report of their journey until they came to Leif's booths in Vineland, and stayed there during the winter, and subsisted by fishing.

But in the spring Thorvald said that they should make the ship ready, and that the ship's boat and a number of men with it should go along the west of the country and explore there during the summer.

The country appeared to them beautiful and well wooded, and but a short distance between the forest and the sea and white sands. Numerous islands were there, and great shallows. Nowhere found they any abodes of men or beasts; but on one island far to the west they found a corn-shed.[2] No other vestiges of men did they find, and in the autumn they returned to Leif's booths.

But the following summer Thorvald went in the trading-vessel along the east side, and rounded the country on the north.[3] Then a great storm fell upon them off a certain headland, and they were driven there ashore, and broke off the keel from under the ship. There they had a long delay while repairing the vessel.

Then said Thorvald, "Now will I that we erect the keel here upon this ness, and call it Kjalarnes [Cape of the Keel];" and they did so. Then they sailed away and stood eastward off the land,[4] and into those bays which there lay nearest, and to that headland which there jutted out.

[1] *Leifr. inn heppni*; so called in Iceland, rather than Leif Eiriksson.

[2] *Kornhjálmr*, — literally, "a corn (or grain) helmet;" a covering for corn or grain.

[3] Nautical, "stood off the north shore."

[4] *Austr fyrir landit*, — literally, "Eastward, around the land." The preposition *fyrir* with accusative, and joined to an adverb denoting direction (a *austr*, the east), signifies motion toward that direction (expressed by the ending "ward" in such compounds as "eastward") and beyond or past the place or point occupied by its

This headland was all covered with forest. Here they ran the vessels into an anchorage and put out gangways, and then Thorvald walked ashore with all his companions.[1]

Then said Thorvald, "Here it is beautiful, and here would I make my home."

They then walked to the ship and saw on the sand, in from the headland, three hillocks; and going thither they saw three skin-boats,[2] and under each three men. They then divided their forces, and seized them all except one, who escaped with his boat. They killed the eight, and then walked back to the cape and looked around there, and saw towards the inner part of the bay several hillocks, which they supposed to be dwellings [settlements, *bygdir*.] Thereupon a drowsiness came over them, so great that they could not keep themselves awake, but fell all asleep. Then a cry broke upon their ears, and they all awoke. Thus said the cry: "Awake, Thorvald, and all thy companions, if thou wilt save thy life; and go on board thy ship with all thy men, and depart from this country at once!"[3]

Then from the inner part of the bay countless skin-boats approached and bore down upon them. Then said Thorvald, "Let us advance the battle-covers [shields] to the gunwale, and defend [ourselves] as best we may, but not attack them much." This they did. But the Skraelings shot upon them awhile, then fled each as best he could.

Then Thorvald asked his men if any of them were wounded. They replied that they were not. "I have," said he, "received a wound under the arm. An arrow flew between the gunwale and the shield and lodged in my armpit; here is the arrow still, and this will cause my death. Now I advise this: that ye prepare for your journey homeward as quickly as possible. But me ye shall carry to the headland which I thought so inviting to dwell on. Mayhap that my words will come true, and that I shall dwell there awhile. There ye shall bury me, and place a cross at my head and another at my feet, and ever after call the headland Krossanes [Cape of Crosses]."

Thorvald then expired, and his companions did everything as he had directed. Afterwards they went and joined their companions, and then each told the other such tidings as they knew.

That winter they dwelt there, and gathered wine-wood [grape-vines] for the ship, and grapes. But in the spring they set sail for Greenland, and reached Eiriksfjord in safety, and told Leif the sad tidings.

object (see Vigfusson). [Beamish says "After that they sailed away round the eastern shores of the land, and into the mouths of the friths which lay nearest thereto, and to a point of land which stretched out and was covered all over with wood." Smith says: "Having done as he desired, they sailed along the coasts leaving that neck to the eastward, and entered the mouths of the neighboring bays." Both are consistent with the Coast Survey chart. — E. N. H.]

[1] [The Gurnet. — E. N. H.]

[2] Birch-bark canoes.

[3] [This cry was probably from one of Leif's party who had remained in Vineland. — E. N. H.]

V.

Thorstein Erikson's Expedition to Vineland.

In the mean time it had come to pass in Greenland that Thorstein of Eiriksfjord had taken a wife, and obtained Gudrid, Thorbjorn's daughter, who had been married to Thórir Eastman, mentioned above. Thorstein Eiriksson became now desirous to go to Vineland after his brother's body, and accordingly fitted out the same vessel, and chose all his crew according to size and strength, taking with him twenty-five[1] men and his wife Gudrid. When ready, they sailed seaward and out of sight of land. All summer they were tossed about, and knew not whither they went; but when the first week of winter was past,[2] they made land at Lysufjörd in Greenland, in the Vesturbygd [Western settlement]. Thorstein now sought winter quarters for them, and obtained lodgings for all his sailors; but himself and his wife were still without a place. Accordingly, they two had to remain for some nights at the ship. One day it so happened that men came to their tents early. Their leader asked who were in the tent.

Thorstein answered, "Two men; but who asks?"

"Thorstein is my name," replied the other, "and I am called Thorstein Svartur [the Black]. But my errand hither is to invite ye both, thee and thy wife, to dwell with me."

Thorstein Eiriksson said he would consult his wife. But she bade him decide this. Accordingly he accepted the offer.

"To-morrow, then," says Thorstein, "I shall come for you with a team. I do not indeed lack anything to provide for ye; but it is very lonesome in my house. There my wife and myself dwell alone, for I am very singular.[3] I also have another religion[4] than ye have, and yet I suppose yours the better."

In the morning, accordingly, Thorstein the Black came after them; and they went with him to dwell, and were well entertained.

Gudrid was a noble-looking woman, discreet, and knew well how to conduct herself among strangers.

It happened early in the winter that a disease broke out among Thorstein Eiriksson's sailors, and several of his men died. Thorstein bade them make coffins about the bodies of the deceased, and move them to the ship, and there keep them. "For I will," said he, "have them all taken to Eiriksfjord next summer."[5]

[1] Peringskjöld translates *hálfan þriðja tang* by "fifty."

[2] [The winter was reckoned by the ancient Northmen to commence on the first Saturday which fell between the 11th and 18th days of October — J. T. Smith. It was on this Saturday that *Eykt* at Réykholt occurred at sunset. — E. N. H.]

[3] *Einþykkr*, self-willed.

[4] Literally, "custom."

[5] An illustration of the rigid adherence to the ceremonies of the Church.

It was not long before the sickness came into Thorstein's home; and his wife, named Grimhild, was the first to take the disease. She was an exceedingly large woman, and strong as a man; but yet the disease laid her low. Soon after this, Thorstein Eiriksson became ill; so that they were both sick at the same time. And then Grimhild, the wife of Thorstein the Black, died. But when she was dead, Thorstein, her husband, walked out of the sitting-room[1] after a board to lay the body on.

Then said Gudrid, "Be not long away, my Thorstein."

He promised this.

Then said Thorstein Eiriksson, "In a strange manner does the housewife now act; for now she rises upon her elbow, pushes her feet out of bed,[2] and fumbles for her shoes."

Just then Thorstein the Black came in; and directly Grimhild lay down, and then it creaked in every timber of the house. Thorstein now made a coffin about Grimhild's body, and buried it. He was a man of great size and strength, and required it all before he could move her out of the house.

But now Thorstein Eiriksson became rapidly worse, and died. This weighed heavily on his wife Gudrid. They were then all in the same sitting-room. Gudrid had been sitting in a chair in front of the bench on which her husband had lain. Then Thorstein the Black took her off the chair into his arms, and sat down on the other bench opposite the corpse; and reasoned with her in many ways, and consoled her, and promised that he would accompany her to Eiriksfjord, and take with her the body of Thorstein her husband, and those of his companions. "I also shall," added he, "take more servants into the house to comfort and cheer thee."

She thanked him.

Then Thorstein Eiriksson sat up and said, "Where is Gudrid?" Three times he said this, but she remained silent.

Then she said to Thorstein [the Black], "Whether shall I make reply to this or no?"

He bade her not answer. Then Thorstein the Black walked across the floor, and sat down on the chair; but Gudrid sat on his knees, and he said, "What wilt thou, Namesake?"

After a while the other replied: "I should like to tell this Gudrid her destiny, that she may the more easily bear my death. For now I am come to good abodes of rest. But this I have to tell thee, Gudrid: that thou shalt be married to an Icelander, and ye two shall live long together, and from ye will spring many men,[3]

[1] *Stofa* (German, *Stube*; Danish, *Stob*; Swedish, *stuga*; English, "stove"), a bathing-room with a stove; a small detached single room; a ladies' sitting-room in ancient dwellings, distinct from *skáli*. Along the walls were arranged beds and benches, as may be seen in the *bad stofa*, in Iceland, at the present day.

[2] *Stokk*, a timber, a board. *Runn stokk*, the board in the side of the bed.

[3] Noble men.

vigorous, illustrious, excellent, and lovable. Ye two will go from Greenland to Norway and thence to Iceland, and there make your home, and there ye shall dwell a long time. And thou shalt live longer than he. Thou shalt go abroad and go south,[1] and come back to Iceland to thy estate; and then a church will be erected there, and in it shalt thou be ordained a nun. And there shalt thou die."

Then Thorstein sank back, and his body was enswathed and taken on board the ship.

Thorstein the Black kept well everything he had promised Gudrid. In the spring he sold his farm and live-stock, made the ship ready, engaged a crew, and went to Eiriksfjord, where all the corpses were buried at church.

Gudrid went to Leif at Brattahlid; but Thorstein the Black took up his abode in Eiriksfjord, and dwelt there while he lived, and was always looked upon as an able and valiant man.

VI.

Of Thorfinn Karlsefni's Expedition to Vineland, and of the Skraelings.

The same summer,[2] there came a ship from Norway to Greenland. The skipper[3] was named Thorfinn Karlsefni. He was the son of Thord Hesthöfda, the son of Snorri, the son of Thord from Höfdi. Thorfinn Karlsefni was very wealthy, and remained during the winter at Brattahlid with Leif Eiriksson.

Soon he began to pay his attentions to Gudrid, and wooed her; but she referred to Leif to answer on her behalf. After this she was betrothed to him, and their wedding made that winter.

Then there was the same talk as before about going to Vineland; and people greatly urged Karlsefni to go, — both Gudrid and others.

The expedition was accordingly decided upon, and he engaged a crew of sixty men and five women. Karlsefni and his crew made that agreement that they should all share equally whatever goods they obtained. They took with them all kinds of live-stock, for they intended to settle the country if they could do so. Karlsefni asked Leif for his houses in Vineland; but he said he would lend his houses, not give them.

After this they put to sea, and arrived safe and sound at Leif's booths, and carried their leathern hammocks ashore there. Soon a great and good catch came into their hands, for a large and good whale [*rohr* whale] was there cast ashore. Accordingly they cut up the whale, and now there was no lack of food. Their cattle went up

[1] So Rafn and Peringskjöld. Literally, "go South," but idiomatically meaning "go to Rome."

[2] That is, when Thorstein the Black came to Eiriksfjord.

[3] Literally, "the man who steered the ship."

into the country; but soon the male animals became unmanageable, and gave much trouble. They had brought with them one bull. Karlsefni had his men fell trees and hew timber for the ship, and placed the wood on a certain rock to dry.[1] They made use of all the natural wealth there, both grapes and all kinds of game and other products.

This first winter past, the summer came, and then they became aware of Skraelings. Out of the woods where their cattle were [grazing], a large company of men emerged. Then the bull began to roar and bellow exceedingly loud; but at this the Skraelings became frightened, and ran away with their burdens, which were gray fur, sable fur, and all kinds of peltry; and now the Skraelings turned to Karlsefni's farmstead, and wanted to enter the houses, but Karlsefni ordered to guard the doors. Neither understood the other's language. Then the Skraelings let down their bundles, and untied these and offered to them for barter, and wanted mostly weapons in exchange. But Karlsefni prohibited to sell the arms. He now contrived a scheme in this way: he would have the women carry out milk (or milk-food[2]) to the Skraelings; and when they saw the milk, then they would buy that and nothing else. This trading expedition of the Skraelings amounted, then, to this, — that they carried their goods away in their stomachs, while Karlsefni and his companions retained the bundles and peltry; and with this result the Skraelings went away.

It now behooves to relate that Karlsefni had a strong stockade made about his building, and fortified the place. At this time Gudrid his wife gave birth to a male child, and this boy was named Snorri.

Early the next winter the Skraelings came to them, much more numerous than formerly, but having the same goods as before. Then Karlsefni said to the women, "Now ye shall carry out that food which was most used on the former occasion, and nothing else." And when the Skraelings saw that, they threw their bundles inside the paling. But Gudrid sat in the door within by the cradle of her son Snorri. Then a shadow fell on the door, and there walked in a woman with a black woven [cloth] kirtle,[3] rather short of stature, wearing a ribbon[4] about her head, with light brown hair, wan-looking, and so large-eyed that none had ever seen so large eyes in any *man's* head.

She walked to where Gudrid sat, and said, "What is thy name?"

The other replied, "I am called Gudrid; but what is thy name?"

"Gudrid am I hight," replied the other.

Then the housewife offered her hand, inviting her to sit beside her. But it happened, all at the same time, that Gudrid heard a great crash, and the woman dis-

[1] [The translation by Mr. J. Eliot Cabot differs in two particulars, both of which commend themselves. It reads: "Karlsefni had wood *felled and hewn*, and *brought to the ship*, and the wood *piled* on the cliff to *dry*." — E. N. H.]

[2] *Bunyt*, milk or milk-food

[3] This, and the command of the Icelandic tongue, determined the Norse origin of the woman.

[4] A habit still preserved among some Indian tribes.

appeared; and just then one of the Skraelings was killed by one of Karlsefni's men,[1] because he had tried to take away their weapons.

And now the Skraelings went away as quickly as possible, but their clothing[2] and wares lay there behind. No one had seen the woman but Gudrid alone.

[Let us consider this incident! The house is surrounded by a stockade of upright logs, — that is, a palisade for defence against surprise or assault in Thorfinn's absences. The door does not open on hinges, but is arranged to slide in a groove parallel to the threshold. As there were no windows, the figure of the woman in the doorway darkened all the room. A woman glides in, and is kindly invited by a gesture to sit beside Gudrid. The unexpected guest is fair, has large eyes, auburn hair bound by a band of cloth — a snood — around the forehead. It was for such use that the red flannel was sought and purchased, as described in other Sagas. The woman wears a woven gown. Here is the textile fabric of which, vaguely, Champlain heard six hundred years later. With the shout or scream near by attending the killing of a Skraeling by one of Gudrid's housemen or guard, the woman vanished.

How natural to ask the name of the woman by the side of Snorri's cradle, — Gudrid, — and how natural the repetition of the inquiry, and the answer! This strange woman spoke in Icelandic! What a world of revelation is presented in this fact! *Norse people were already here.* One realizes what Freydis said: "Expeditions to Vineland were commonly regarded as profitable and honorable." There was commerce here. Gudrid told the dignitaries at Rome of the beautiful country in the far west; of Vineland the Good, and of the Christian *settlements* made there by Scandinavians. Adam Von Bremen was told by the Danish King that he had subjects there, in the land where corn grew wild and grapes abounded. And this occurred near Gerry's Landing, between Norse women, nine hundred years ago! — E. N. H.]

"Now we shall have to form our plans," said Karlsefni; "for I suspect they will visit us the third time, and for war and in great numbers. We shall now adopt this plan, — that ten men go out on this ness and show themselves; but the rest of our force shall go into the woods, and there be cutting a clearing for our cattle when the enemy emerges from the forest. We shall also take the bull along, and let him go ahead of us."[3]

But where the meeting was intended the landscape was such that a lake was on one side, but forest on the other. Karlsefni's plan was accordingly adopted.

The Skraelings now came to the place which Karlsefni had intended for the fight; and there a battle was fought, and large numbers of the Skraelings were slain. Among the Skraelings there was one large and handsome man, and it seemed to Karlsefni that he was their chief. Now, one of the Skraelings had picked up an axe and looked at it awhile, and lifted it against his comrade and struck him. The man

[1] Literally, "man-servant."

[2] *Klaedi*, cloth or clothes.

[3] A curious coincidence with the plan of the early New-England colonists, who, when working in the field, placed the cattle between themselves and the forest as scouts; for on the approach of the Indians the cattle used to show signs of great terror.

immediately fell down dead. Then the great man took the axe and looked at it awhile, and then hurled it out on the sea as far as he could. The Skraelings then fled, each as best he could, to the woods; and thus their conflict for the time ended.

Karlsefni and his men stayed there that whole winter; but in the spring Karlsefni announced that he would not remain there any longer, but would return to Greenland.

Accordingly they made ready for the voyage, and took with them great wealth in vines, berries, and peltry. Then they put to sea, and brought the vessel safe and sound into Eiriksfjord, and abode there during the winter.

VII.

Of Freydis, Eirik's Daughter, and her Expedition to Vineland, and her Crimes.

Once more there arose a talk about an expedition to Vineland, for it was looked upon as profitable and honorable. That summer in which Karlsefni came from Vineland, a ship came from Norway to Greenland. Two brothers, Helgi and Finnbogi, steered the ship. They remained in Greenland that winter. These brothers were Icelanders by birth, and hailed from the Austfjords [the East-fjords].

The narrative now turns to where Freydis, Eirik's daughter, made a trip from her home at Gardar, and visited the brothers Helgi and Finnbogi, and proposed to them to go to Vineland with their ship, and that they should go halves in[1] whatever wealth they obtained there. The brothers agreed to this. She then went to see Leif, her brother, and requested him to let her have the buildings which he had caused to be erected in Vineland. But he replied as on a former occasion, — said he would lend the houses, not give them. Between Freydis and the brothers mentioned above there was an agreement that either party should have thirty men skilled in arms on board that ship, and women in addition. But Freydis broke this at once, and had five men more, and hid them so that the brothers became not aware of them until they came to Vineland. And now they put to sea. They had agreed before that they should sail close together if possible, and there was but little difference between them; but yet the brothers arrived a little before the others did, and had then carried their stores up to Leif's houses. But when Freydis arrived, then her crew cleared the ships and carried their goods to the houses.

Then said Freydis, "Why did ye carry your goods in here?"

"Because we thought," replied they, "that every word of agreement between us would be kept."

"To me," she answered, "Leif granted and lent these houses; not to ye."

"In wickedness shall we brothers not be able to match thee," said Helgi.

[1] Literally, "go halves in," etc

They then carried their goods out and put them [1] carefully away, and made a shed building for themselves farther from [2] the sea on a lake shore, and fortified it well; but Freydis had her men cut timber for her ship.

Winter now approached; and then the two brothers proposed that athletic games should begin, and chief [3] amusements be held. This was done awhile, until the men made accusations against one another. Then a quarrel arose, and the games were discontinued, and intercourse between the houses ceased. This went on during a great part of the winter.

One morning early it came to pass that Freydis arose from her couch and dressed, without pulling on her shoes or stockings.[4] But the weather was such that much dew had fallen. She took her husband's cloak and put it on, and then she walked to the house of the brothers. But a short while before some man had walked out and shut the door half-way.[5] She opened the door, and stood in the doorway, and there remained silent.

But Finnbogi lay farthest in the house. He was awake, and said, "What wilt thou hither, Freydis?"

She replied, "I wish that thou wouldst arise and walk out with me; I want to speak to thee."

He did so; and they walked to a tree which lay by the wall of the house, and sat down there.

"How dost thou like it here?" she began.

"I like the country well, but do not like the coldness between us, for it seems to me without good cause." [6]

"Now speakest thou the truth," she replied; "and so it seems to me. But my errand hither is that I would trade vessels with ye brothers, for ye have a larger ship than I; and I would away from here."

"That I shall bring about," said he, "if thou art then satisfied."

With this they separated; and she walked home, but Finnbogi went to his bed.

She then stepped into her bed with cold feet; and with that Thorvald awoke, and asked why she was so cold and wet. But she replied in a great huff, —

"I had gone to the brothers to ask leave to purchase their ship, for I wanted to buy a larger vessel. But they became so incensed that they beat me and ill-treated me. But thou, poor wretch! art not likely to wish to avenge or obtain satisfaction for my shame nor thine. I now begin to feel that I am no longer in Greenland, and from thee I shall obtain separation unless thou avenge this."

[1] *Bûa vel um;* wanting in Rafn.

[2] Rafn. *forr = fjarr,* — that is, "farther away." Peringskjöld: *fyrr,* possibly = *fyrir,* "before."

[3] *Höfud.*

[4] *Skôlaedi,* shoe-clothes.

[5] Literally, *lokad hurdiniri i midjan klofa,* — that is, "shut the door to the middle of the groove."

[6] More literally, "The quality of the country seems good to me, but that coldness between us seems to me evil, for I think it without good cause." *Fiandi,* storm, anger.

But he could not bear her rebuke, and bade his men arise at once and don their armor; and they did so, and went to the house of the brothers and walked in upon them asleep, and then led each one out as he was bound. But Freydis had every one who came out put to death. Thus all the men were killed; but the women were still alive, and no man would kill them.

Then said Freydis, "Hand me the axe;" and that was done. Then she fell upon[1] the five women who were there and left them dead.

After this wicked deed Freydis and her men went to their own house, and no one could notice anything but that Freydis thought she had well managed.

And to her companions she said, "If we have the good fortune[2] to reach Greenland, then," added she, "shall I have that man's life that tells of these events.[3] But let us say that when we left they dwelt there behind."

Now, early in the spring they fitted out that ship which had belonged to the brothers, and loaded it with all the goods which they could obtain and the ship could carry. Then they put to sea, and had a quick passage, and brought their ship into Eiriksfjord early that summer.

There was Thorfinn Karlsefni with his ship, bound for a voyage and awaiting a favorable wind. It is said that no costlier ship ever left Greenland than the one he commanded.[4]

Freydis went to her farmstead, which all the while had remained unharmed. She granted her followers a large booty, for she wanted to have her crime kept secret. But all were not so reserved[5] in remaining silent about their evil deeds and wickedness, that these did not come to light at last. And finally this came to the ears of her brother Leif, and the story seemed to him most horrible. Leif then took three men of Freydis's crew, and tortured them all at the same time to tell[6] the truth about this event. And their evidence was all one way.[7]

Then said Leif, "I have not a heart to deal with my sister as she deserves; but this I prophesy, that their offspring will never prosper."[8]

And thus it came to pass that from that time no one thought of them[9] anything but evil.[10]

1 *Vegr hun*, attacks.
2 "If it falls to our lot."
3 *Atburdum*, events, deeds.
4 Literally, "steered."
5 *Halldinn ordinn*, "reserved, close;" but in modern Icelandic, "faithful to his word." So translated by Peringskjöld and Rafn.
6 Literally, "to tell."
7 That is, "agreed on everything."
8 Literally, "thrive."
9 Freydis and her husband, or Freydis and her companions.
10 More literally, "counted them worth anything but evil."

MÖSURR-WOOD. THORFINN KARLSEFNI AND HIS LINEAGE.

It is now necessary to relate that Karlsefni fitted out his ship and sailed from Greenland to Norway. He had a speedy passage, and came to Norway with everything safe and sound, and remained there during the winter and sold his wares. He and his wife were highly favored by the leading men of Norway. But in the following spring he rigged out his vessel to sail to Iceland. But when he was all ready, and his ships lay off the bridges waiting for favorable wind, there came to him a German related to people in Bremen[1] in Saxon-land.[2] He desired to purchase of Karlsefni his *húsa-snotra*.[3]

"I will not sell," said Karlsefni.

"I offer you half a pound of gold,"[4] said the Southerner.

Karlsefni thought this a good bid, and closed the bargain. The German then went away with the *húsa-snotra*. But Karlsefni knew not what wood was in it. It was mösurr[5] from Vineland. And now Karlsefni put to sea, and brought his ship to Skagafjord, in the north quarter of Iceland. There he remained during the winter. In the following spring he bought the Glumbæ Estate [see Henderson's map of Iceland], on which he built a house, and where he lived during the remainder of his life, much honored.

From Karlsefni and his wife sprang a numerous and illustrious race. Thorfinn being dead, Gudrid and Snorri remained on the estate, — the latter being the son born in Vineland. When Snorri married, Gudrid took a journey to Rome, and

[1] Literally, "related to people in Bremen." Bremen was a strongly fortified commercial city, of great enterprise and wealth, on the Weser.

[2] Saxonland, — a general name for the region of Hanse towns.

[3] [Peringskjöld's translation into Swedish is *mag*, "scales for weighing;" and his translation into Latin is *Ligneam stateram*. Andrews and Stoddard give for *statera*, "(1) steelyard; also, a balance, a goldsmith's scales. (2) polebar of a chariot; also, a kind of platter, so called from its resemblance to the scale of a steelyard or balance." These Latin equivalents may reconcile the variously suggested meanings. The steelyard and scales perform somewhat the same office, and the names might be equivalent, and were indeed. The bar of a steelyard, pole-bar, broom-handle, and house-bar — all of which have been suggested by translators — have a common quality. The scale-pan is thin and concave. One made of masur-wood — burr-wood — might be thin, not liable to crack or warp, and lasting. The interlacing fibres of such wood give value to it for chalices, goblets, and maces; besides, it was a decorative wood. In such wood the Bremen merchant could see a value for industrial uses, — as we use like wood in the form of veneers for furniture, for interior finish, for bowls, kneading-troughs mortars (for household use), etc. — E. N. H.]

[4] *Mörk*, eight ounces. Beamish estimates the value at sixteen pounds sterling. Herrera, the Spanish author, mentions a half mark as equal to eight ounces.

[5] Peringskjöld and Rafn, *masurr*; Vigfusson, *mösurr*; Modern and Old High German, *masur = knorriger auswuchs*; High German and Old English, *maser*, — a maple-tree, spot-wood. Canto V., last stanza, and Appendix, Scott's "Lord of the Isles": "Bring here," he said, "the mazers four," — large wooden drinking cups or goblets.

afterward returned to her son's house, who had meantime built a church at Glumbæ. Gudrid subsequently entered a convent, and passed the remainder of her life in solitude.

Snorri had a son who was named Thorgeir. He was the father of Ingveld, the mother of Bishop Brand. The daughter of Snorri, Karlsefni's son, was named Hallfrit. Her son was Runólf, the father of Bishop Thórlak.

Karlsefni and Gudrid had another son named Bjarni. His daughter was Thornun, mother of Bishop Bjarni. From Karlsefni many great and good men are descended; and of all men Karlsefni has most clearly reported of all these expeditions of which anything is now related.

IX.

Narratives of Thorfinn Karlsefni.[1]

There was a man named Thord, who dwelt at Höfda, in Höfda-Strand. He married Fridgerda, daughter of Thorer the Idle, and of Fridgerda the daughter of Kiarval, King of the Irish. Thord was the son of Biarne Byrdusmjör, son of Thorvald, son of Aslak, son of Biarni Ironsides, son of Ragnar Lodbrok. They had a son named Snorri, who married Thorhild the Partridge, daughter of Thord Geller. They had a son named Thord Horsehead. Thorfinn Karlsefni was his son, whose mother's name was Thorunn.

Thorfinn occupied his time in merchant voyages, and was thought a good trader. One summer he fitted out his ship for a voyage to Greenland, attended by Snorri Thorbrandsson, of Alpafjord, and a crew of forty men. There was a man named Biarni Grimolfsson, of Breidafjord, and another named Thorhall Gamlasson, of Austfjord. The men fitted out a ship at the same time, to voyage to Greenland. They also had a crew of forty men. This ship and that of Thorfinn, as soon as they were ready, put to sea. It is not said how long they were on the voyage; it is only told that both ships arrived at Eriksfjord in the autumn of that year. Leif and other people rode down to the ships, and friendly exchanges were made. The captains requested Leif to take whatever he desired of their goods. Leif in return entertained them well, and invited the principal men of both ships to spend the winter with him at Brattahlid. The merchants accepted his invitation with thanks. Afterwards their goods were moved to Brattahlid, where they had every entertainment that they could desire; therefore their winter quarters pleased them much. When the Yule-feast began, Leif was silent, and more depressed than usual. Then Karlsefni said to Leif, —

[1] [This translation of the Thorfinn Sagas I have taken from Dr. De Costa's "Pre-Columbian Discovery of America," pages 49–61, adding occasional notes and parallel passages from other relations. — E. N. H.]

"Are you sick, friend Leif? You do not seem to be in your usual spirits. You have entertained us most liberally, for which we desire to render you all the service in our power. Tell me what it is that ails you."

"You have received in the kindest manner what I have been able to offer you," said Leif, "and there is no idea in my mind that you have been wanting in courtesy; but I am afraid lest when you go away it may be said that you never saw a Yule-feast so meanly celebrated as that which draws near, at which you will be entertained by Leif of Brattahlid."

"That shall never be the case, friend," said Karlsefni. "We have ample stores in the ship; take of these what you wish, and make a feast as splendid as you please."

Leif accepted this offer, and the Yule began; and so well were Leif's plans made that all were surprised that such a rich feast could be prepared in so poor a country.

After the Yule-feast Karlsefni began to treat with Leif as to the marriage of Gudrid, — Leif being the person to whom the right of betrothal belonged. Leif gave a favorable reply, and said she must fulfil that destiny which fate had assigned, and that he had heard of him none except a good report; and in the end it turned out that Karlsefni married Gudrid, and their wedding was held at Brattahlid this same winter.

The conversation often turned at Brattahlid on the discovery of Vineland the Good, and they said that a voyage there had great hope of gain. And after this Karlsefni and Snorri made ready for going on a voyage there the following spring. Biarni and Thorhall Gamlasson, before mentioned, joined them with a ship. There was a man named Thorvald, who married Freydis, natural daughter of Erik the Red, and he decided to go with them, as did also Thorvald, son of Erik. And Thorhall, commonly called the Hunter, who had been the huntsman of Erik in the summer and his steward in the winter, also went. This Thorhall was a man of immense size and great strength, of dark complexion and taciturn, and when he spoke it was always jestingly. He was inclined to give Leif evil advice, and was an enemy of Christianity. He knew much about desert lands, and was in the same ship with Thorvard and Thorvald. These used the ship which brought Thorbiorn from Iceland. There were in all forty men and a hundred.[1]

They sailed to the west district, and thence to Biarney; hence they sailed south a night and a day. Then land was seen, and they launched a boat and explored the land; they found great flat stones, many of which were twelve ells broad. There were a great number of foxes there. They called the land Helluland.

Then they sailed a day and a night in a southerly course, and came to a land covered with woods,[2] in which were many wild animals. Beyond this land, to the

[1] A hundred was equal to one hundred and twenty. [There were one hundred and sixty in all. — E. N. H.]

[2] Possibly they touched the eastern extremity of Nova Scotia or Cape Breton.

southeast, lay an island, on which they slew a bear. They called the island Bear Island, and the land Markland.

. . . . . .

Thence they sailed south two days, and came to a cape. The land lay on the right [starboard] side of the ship, and there were long shores of sand. They came to land, and found on the cape the keel of a ship; from which they called the place Kialarness, and the shores they also called Wonder-Strand, because it seemed so long sailing by.

Then the land became indented with coves, and they ran the ship into a bay, whither they directed their course. King Olaf Tryggvesson had given Leif two Scots,[1] — a man named Haki and a woman named Hekia; they were swifter of foot than wild animals. These were in Karlsefni's ship. And when they had passed beyond Wonder-Strand, they put these Scots ashore, and told them to run over the land to the southeast three days, to discover the nature of the land, and then return. They had a kind of garment that they called kiafal, which was so made that a hat was on top, and it was open at the sides, and had no arms; it was fastened between the legs with a button and strap. Otherwise they were naked. When they returned, one had in his hand a bunch of grapes and the other an ear of corn. They went on board, and afterwards the course was obstructed by another bay. Beyond this bay was an island, on each side of which was a rapid current, which they called the Isle of Currents (Straum-ö = Straumey). There was so great a number of eider ducks there that they could hardly step without treading on their eggs.[2] They called this place Streamfirth (Straumfjörd). Here they brought their ships to land, and prepared to stay.[3]

. . . . . .

They had with them all kinds of cattle. The situation of the place was pleasant, but they did not care for anything except to explore the land.

. . . . . .

Here they wintered without sufficient food. The next summer, failing to catch fish, they began to want food. Then Thorhall the Hunter disappeared.

They found Thorhall, whom they sought three days, on the top of a rock, where he lay breathing, blowing through his nose and mouth, and muttering. They asked why he had gone there. He replied that this was nothing that concerned them. They said that he should go home with them, which he did. Afterwards a whale

[1] [This term applied to the inhabitants of both Scotland and Ireland. — E. N. H.]

[2] See *Notes*, p. 141.

[3] [The two preceding paragraphs evidently belong to another Saga; the succeeding paragraphs have also the appearance of being fragments of separate relations, in all probability misplaced by a copyist. In the original of this Thorfinn Saga, Leif was called Eirik. The Sagas of Eirik Raude (Erik the Red) include the stories of the expeditions and discoveries made by the father and the sons. On the death of the father and both brothers, Leif succeeded to the patrimony and all rights of discovery of the family, and also, it would seem, to the name of the father — E. N. H.]

was cast ashore in that place, and they assembled and cut it up, not knowing what kind of a whale it was. They boiled it with water, and devoured it, and were taken sick. Then Thorhall said, "Now you see that Thor is more prompt to give aid than your Christ. This was cast ashore as a reward for the hymn which I composed to my patron Thor, who rarely forsakes me." When they knew this, they cast all the remains of the whale into the sea, and commended their affairs to God. After which the air became milder, and opportunities were given for fishing, and from that time there was an abundance of food; and there were beasts on the land, eggs on the island, and fish in the sea.

. . . . . .

They say that Thorhall desired to go northward around Wonder-Strand to explore Vineland, but Karlsefni wished to go along the shore south. Then Thorhall prepared himself at the island, but did not have more than nine men in his whole company; and all the others went in the company of Karlsefni. When Thorhall was carrying water to his ship, he sang this verse: —

"People said when hither I
Came, that I the best
Drink would have; but the land
It justly becomes me to blame.
I, a warrior, am now obliged
To bear the pail;
Wine touches not my lips,
But I bow down to the spring."

And when they had made ready and were about to sail, Thorhall sang, —

"Let us return
Thither where [our] countrymen rejoice.
Let the ship try
The smooth ways of the sea,
While the strong heroes
Live on Wonder-Strand, and there boil whales, —
Which is an honor to the land."

Afterwards he sailed north, to go around Wonder-Strand and Kialarnes; but when he wished to sail westward they were met by a storm from the west and driven to Ireland, where they were beaten and made slaves. And, as merchants reported, there Thorhall died.

. . . . . .

It is said that Karlsefni, with Snorri and Biarni and his comrades, sailed along the coast south.[1]

. . . . . .

[1] [This paragraph laid the foundation of the notion that Thorfinn went south of Cape Cod. I have referred to it in the text, page 85. Of the early Northmen coming to Vineland none passed Monomoy. — E. N. H.]

They sailed long, until they came to a river flowing out from the land through a lake into the sea; here there were sandy shoals, which it was impossible to pass up except with the highest tide. Karlsefni sailed up to the mouth of the river with his folk, and called the place Hóp. Having come to the land, they saw that where the ground was low, corn grew, and where it was higher, vines were found. Every river was full of fish.

They dug pits where the land began, and where the land was highest; and when the tide went down there were sacred fish in the pits.

There were great numbers of all kinds of wild beasts in the woods.

. . . . . .

They stayed there half a month, and enjoyed themselves, and did not notice anything; they had their cattle with them.

. . . . . .

And early one morning, when they looked around, they saw a great many skin boats [birch-bark canoes], and poles were swung upon them, and it sounded like reeds shaken by the wind, and they pointed to the sun.[1]

Then said Karlsefni, "What may this mean?"

Snorri Thorbrandsson replied, "It may be that this is a sign of peace; so let us take a white shield and hold it towards them."

They did so. Thereupon they rowed towards them, wondering at them, and came to land. These people were swarthy and fierce, and had bushy hair on their heads; they had very large eyes and broad cheeks. They stayed there for a time and gazed upon those they met, and afterwards *rowed away southward around the ness.*

. . . . . .

Karlsefni and his people had made their houses above the lake, and some of the houses were near the lake, and others more distant. They wintered there, and there was no snow, and all their cattle fed themselves on the grass. But when spring came, they saw one morning early that a number of canoes rowed from the south around the ness, — so many as if the sea were sown with coal; poles were also swung on each boat. Karlsefni and his people then raised up the shield, and when they came together they began to trade. And these people would rather have red cloth; for this they offered skins and real furs. They would also buy swords and spears; but this Karlsefni and Snorri forbade. For a whole fur skin the Skraelings took a piece of red cloth a span long, and bound it round their heads. Thus went on their traffic for a time; then the cloth began to be scarce with Karlsefni and his people, and they cut it up into small pieces, which were not wider than a finger's breadth; and yet the Skraelings gave just as much as before, and more.

[1] Possibly the paddles were simply held up while the canoes floated with the ebb tide. When they returned up the river they *had to row;* it was *against the tide.*

It happened that a bull which Karlsefni had, ran out of the wood and roared aloud; this frightened the Skraelings, and they rushed to their canoes and rowed away toward the south, and after that they were not seen for three whole weeks. But at the end of that time a great number of Skraelings' ships were seen coming from the south like a rushing torrent [ebb-tide.— E. N. H.], all the poles turned from the sun, and they all yelled very loud. Then Karlsefni's people took a red shield and held it towards them. The Skraelings leaped out of their vessels, and after this they went against each other and fought. There was a hot shower of weapons, because the Skraelings had slings. Karlsefni's people saw that they raised up on a pole a very large ball, something like a sheep's paunch [seal-skin distended.— E. N. H.], and of a blue color; this they swung from the pole over Karlsefni's men upon the ground, and it made a great noise as it fell down. This caused great fear with Karlsefni and his men, so that they thought only of running away, and they retreated along the river; for it seemed to them that the Skraelings pressed them on all sides; they did not stop until they came to some rocks, where they made a bold stand.

Freydis came out and saw that Karlsefni's people fell back, and she cried out, "Why do you run, strong men as you are, before these miserable creatures, whom I thought you would knock down like cattle? And if I had arms, methinks I could fight better than any of you." They gave no heed to [her?] words.

Freydis would go with them, but she was slower because she was pregnant; still she followed after them into the woods. She found a dead man in the woods; it was Snorri Thorbrandsson, and there stood a flat stone in his head; the sword lay naked by his side. This she took up, and made ready to defend herself. Then the Skraelings came toward her. She drew out her breasts from under her clothes and dashed them against the naked sword; by this the Skraelings became frightened, and ran off to their ships and rowed away. Karlsefni and his men then came up and praised her courage. Two men fell on Karlsefni's side, but a number of the Skraelings. Karlsefni's band was overmatched. And now they went home to their dwellings and bound up their wounds, and considered what crowd that was that pressed upon them from the land side; and it now seemed to them that it could hardly have been real people from the ships [canoes], but that these must have been optical illusions. The Skraelings also found a dead man, and an axe lay by him; one of them took up the axe and cut wood with it; and then one after another did the same, and thought it was a fine thing and cut well. After that one took it and cut at a stone so that the axe broke; and then they thought it was of no use because it would not cut stone, and they cast it away.

Karlsefni and his people now thought that they saw, although the land had many good qualities, that they still would always be exposed there to the fear of attacks from the original dwellers. They decided, therefore, to go away, and to return to their own land.

They coasted northward along the shore, and found five Skraelings clad in skins sleeping near the sea. They had with them vessels containing animal marrow mixed with blood. Karlsefni's people thought that these men had been banished from the land; they killed them.

. . . . . .

After that they came to a ness; and many wild beasts were there, and the ness was covered all over with dung from the beasts which had lain there during the night.

. . . . . .

Now they came back to Sfraumfjord, and there was a plenty of everything that they wanted to have.

. . . . . .

It is thus that some men say that Biarni and Gudrid stayed behind, and one hundred men with them, and did not go farther; but that Karlsefni and Snorri went southward, and forty men with them, and were not longer in Hóp than barely two months, and the same summer came back.

. . . . . .

Karlsefni then went with one ship to seek Thorhall the Hunter, but the rest remained behind; and they sailed northward past Kialarness, and thence westward, and the land was upon their larboard. There were wild woods over all, as far as they could see, and scarcely any open places. And when they had sailed long, a river ran out of the land from west to east. They sailed into the mouth of the river, and lay by its banks. [The foregoing paragraph should follow that immediately after Thorhall's second song. It shows, like the one just before it, the confusion of the copyist, or of the original scribe; and the two together testify to the conscientiousness of the relators. — E. N. H.]

NOTES.

Map of Ruysch.

This map of Ruysch, 1807, has preserved — attached naturally to the coast of Asia, in keeping with the geographical notions of the day — a wonderfully accurate chart of the coast from Cape Ann around the peninsula of Cape Cod and including Narragansett Bay. The In. Biggettu — the dialectic equivalent of Bagaduce (Trumbull) and of Aquidnet (noted by Roger Williams, and still preserved at Newport) — seems to have marked the extent of the Portuguese explorations. We have, besides, Cape Portogessi in the latitude of Cape Cod; Terra Nova, the land discovered by John Cabot in 1497; the Rio Grande, — the name, preserved for more than a century, of the Charles, — with the Archipelago (of Gomez) at its mouth, and the Baia de Rockas, for which the numerous "Breakers" of the Coast Survey chart furnish the equivalent. There are also given Gloucester Harbor, and the mouths of the gulfs on either side of Salem Neck. The point of greatest significance is the island — In. Baccalauras — against the end of Cape Cod.

Let us refresh the recollection for a moment by glancing at the structure of Cape Cod. It has been studied by Agassiz as a fine exhibition of terminal moraines. The whole region is characterized by glacial deposits. The town of Plymouth includes more than a hundred lakes and ponds which occupy depressions in the great group of moraines. Indeed, a large part of this region of the State is marked by them. The chain of moraines extending eastward and northward from Onset Bay to the Race, where the last great glaciers died out in Cape Cod Bay, was doubtless traversed by many channels that have, from that day on, been closing up with sand through the great natural agencies, — currents, winds, and waves, — until now, with the exception of a few points, on either side of the peninsula the beaches are continuous. New beaches form, and old ones are from time to time swept away, in the neighborhood of Chatham. They show the instrumentalities which, in times gone by, have modified the character of the Cape, and which were quite adequate to connecting the beach and the cluster of moraines and the sand-dunes at the northern end, with the Highland Range. In some instances channels have been in part filled by blown sand. Such is the channel of the ancient Bass River, still open at both extremes and for a considerable distance inland, and there closed by blown sand. This was probably the channel traversed, according to tradition, by the ship of the New Haven colonists in 1639. It was, I conceive, this channel that made all easterly and northerly from it the Island of Louisa of Verrazano (1524), which was, he writes, *triangular and of about the size of the Island of Rhodes*.

Carenas.

To return to Lok's map containing the inscription, "J. Gabot, 1497." If Cabot's chart of 1497, referred to by Raimundus (see Dr. Deane's paper in the "Narrative and Critical History of America," iii. 54,), was incorporated into Lok's general map, including Cartier's river of Canada of 1534–1535, — the St. Lawrence, — on the one hand, and Verrazano's isthmus, — which I have elsewhere (in "Address," 1887, and also in "Landfall of Cabot" and "Site of Norumbega," 1886) pointed out as the narrow strip eastward from Barnstable, to the north of which would, of course, be Cape Cod, — then this portion of the map, assuming it to bear properly the date of 1497, contains the earliest recognition, after the Saga time, of the Norse name Carenas.

The Icelandic schoolmaster Stephanius, in his map illustrating the geography of Vineland and the bay it faces, gives the northern angle within Cape Ann to Englishmen, and the southern salient (Cape Cod) to Promontorium Vinlandiæ. Cosa had recognized, in 1500, the previous presence of the English in this bay. It is in the inscription "mar descubierta por ingleses." In point of time this is next to the inscription, "J. Gabot, 1497," virtually endorsed by Lok in his dedication to Sir Philip Sidney, as a copy of a chart by Cabot. It is associated with Stephanius note A. in the description of his map (see Saga Time). "Where the English have come," applied to the salient, where John Cabot made his Landfall, June 24, 1497. We have also on Lok's map that which makes it unspeakably valuable, — the association of Cape Breton and St. John (which Allefonsce put in latitude 43°) and Norumbega with the Landfall of the Northmen. On this map also are CARENAS, Verrazano's Isthmus, Boston Harbor, and Salem Neck, all imperishably linked with the Landfall of John Cabot in 1497, — *the earliest fact in the history of British sovereignty in America.*

ON MERRIAM'S MAP WE HAVE P. COARANES.

I am indebted for this map to the late J. Carson Brevoort, in early life *attaché* to the Spanish Mission under Washington Irving.

This *Coaranes* (it might equally well be *Koaranes*) represents very nearly the pronunciation of *Kjölrnes*, nom., and *Kjalarnes*, gen. A cultivated Icelander and a Norwegian, — both university men, — to whom I have submitted it, say that the *l* and *r* are interchangeable in Icelandic as in other languages. Roger Williams and John Eliot both observed that *alum* and *arum* were the Indian words for "dog," in localities very near one another. There is a slight but not unusual metathesis in going from *Coaranes* to *Carenas*. It was doubtless the name as given by a native in whose family it had been preserved. Side by side with it on the same map is the duplicate, the C. de las Arenas by a Portuguese cartographer, — the C. de Arenas of Mercator. Next on the north is Christoval, — the harbor of Plymouth on many maps; beyond is Montana Verde (the Blue Hills), and a little farther the Rio Grande (the Charles). Norumbega and New France are given in larger letters nearly against Cape Breton (Cape Ann).

These relations fix the position and identity of Cape Cod with the Carenas of Lok, which had Verrazano's Isthmus (Barnstable) on the south, and Cape Breton (Cape Ann) on the north.

A BRIEF DESCRIPTION OF THE WHOLE EARTH.

(*From Antiquitates Americanæ, p.* 283.)

"The earth is said to be divided into three parts. One of these is called Asia, and extends from northeast to southwest, and occcupies the middle of the earth. In the eastern part are three separate regions, called Indialand. In the farthest India the Apostle Bartholomew preached the faith; and there he likewise gave up his life (for the name of Christ). In the nearest India the Apostle Thomas preached, and there also he suffered death for the cause of God. In that part of the earth called Asia is the city of Nineveh, greatest of all cities. It is three days' journey in length and one day's journey in breadth. There is also the city of Babylon, ancient and very large. There King Nebuchadnezzar formerly reigned; but now that city is so thoroughly destroyed that it is not inhabited by men on account of serpents and all manner of noxious creatures. In Asia is Jerusalem, and also Antioch; in this city Peter the Apostle founded an Episcopal seat; and there he, the first of all men, sang Mass. Asia Minor is a region of Great Asia. There the Apostle John preached, and there also, in the city of Ephesus, is his tomb. They say that four rivers flow out of Paradise. One is called Pison, or Ganges; this empties into the sea surrounding the world. Pison rises under a mountain called Orcobares. The second river flowing from Paradise is called Tigris, and the third Euphrates. Both empty into the Mediterranean (Sea), near Antioch. The Nile, also called Geon, is the fourth river that runs from Paradise. It separates Asia from Africa, and flows through the whole of Egypt. In Egypt is New Babylon (Cairo), and the city called Alexandria. The second part of the earth is called Africa, which extends from the southwest to the northwest. There are Serkland, and three regions called Blaland (land of black men, or negroes). The Mediterranean Sea divides Europe from Africa.

Europe is the third part of the earth, extended from west and northwest to the northeast. In the east of Europe is the kingdom of Russia. There are Holmgard, Palteskia, and Smalenskia. South of Russia lies the kingdom of Greece. Of this kingdom the chief city is Constantinople, which our people call Miklagard. In Miklagard is a church, which the people call St. Sophia, but the Northmen call it Ægisif. This church exceeds all the other churches in the world, both as respects its structure and size. Bulgaria and a great many islands, called the Greek Islands, belong to the kingdom of Greece. Crete and Cyprus are the most noted of the Greek islands. Sicily is a great kingdom in that part of the earth called Europe. Italy is a country south of the great ridge of mountains called by us Mundia [Alps]. In the remotest part of Italy is Apulia, called by the Northmen Pulsland. In the middle of Italy is Rome. In the north of Italy is Lombardy, which we call Lombard-land. North of the mountains on the east is Germany, and on the southwest is France. Hispania, which we call Spainland, is a great kingdom that extends south to the Mediterranean, between Lombardy and France. The Rhine is a great river that runs north from Mundia between Germany and France. Near the outlets of the Rhine is Friesland, northward from the sea. North of Germany is Denmark. The ocean runs into the Baltic Sea near Denmark. Sweden lies east of Denmark, and Norway is at the north. North of Norway is Finnmark; the coast bends thence to the northeast, and then toward the east, until it reaches Permia, which is tributary to Russia. From Permia desert tracts extend to the north, reaching as far as Greenland. Beyond Greenland, southward, is Helluland; beyond that is Markland; from thence it is not far to Vineland, which some men are of the opinion extends to Africa. England and Scotland are one island, but each is a separate kingdom. Iceland is a great island. Iceland is also a great island north of Ireland. All these countries are situated in that part of the world called Europe. Next to Denmark is Lesser Sweden; then is Oeland, then Gottland, then Helsingeland, then Vermeland, and the two Kvendlands, which lie north of Biarmeland. From Biarmeland stretch desert lands toward the north until Greenland begins. South of Greenland is Helluland; next is Markland. From thence it is not far to Vineland the Good, which some think goes out to Africa; and if this is so, the sea must extend between Vineland and Markland. It is told that Thorfinn Karlsefni cut wood here to ornament his house; went afterwards to seek out Vineland the Good, and came there where they thought the land was, but did not reach it, and got none of the wealth of the land.[1] Leif the Lucky first discovered Vineland, and then he met some merchants in distress at sea, and by God's grace saved their lives; and he introduced Christianity into Greenland, and it flourished so there that an Episcopal seat was set up in the place called Gardar. England and Scotland are an island, and yet each is a separate kingdom. Ireland is a great island. These countries are all in that part of the world called Europe."

Eggs on Straumey.

The eggs were not improbably, as Dr. De Costa suggests, gulls' eggs. No mention is made in the Saga of the eider-down in which the Iceland mother embeds her eggs. One of the Thorfinn narratives speaks only of *birds* in connection with the profusion of eggs. Two speak of eider-ducks in the same connection.

The sentences in the Norse relations are as follows:—

"1. There were so many eider-ducks [*ædur*] on the island [*Straumey*] that one could scarcely walk in consequence of the eggs." (Beamish, Prince Society's Publications, p. 51.)

"2. On the island there were an immense number of eider-ducks, so that it was scarcely possible to walk without treading on their eggs." (Beamish, Prince Society's Publications, p. 105.)

"3. There was a great number of birds, and it was scarcely possible to find a place for their feet among the eggs." (De Costa, Pre-Columbian Discovery of America, 1868,, p. 66.)

It is evident that some of the narrators or translators did not regard the source of the eggs as eider-ducks.

Fifty years ago there were on the coast, in latl-

[1] An allusion, possibly, to his abandonment of the contemplated expedition southward from Straumfjord (Chatham), when he went to seek Therhall.

tude 41°–42°, some twenty-five distinctly named kinds of wild ducks well known to sportsmen and collectors of birds. This list included five kinds of coot, of which the eider-duck was one. A single one, only, of all these different kinds of ducks was known to nest in the region, — *Anas sponsa*. (Letter of Dr. De Kay, first zoölogist of the Natural History of New York, to Thompson, historian of Long Island, 1843: Thompson's History, vol. ii. p. 248.) Possibly others did; but the far greater number were transient, and this must, to most of them, have been near the southern limit of their migration.

Immense flocks of ducks, — black, red-heads, old squaws, coots, and others, — besides gulls, peeps, pipers, snipe, plover, etc., formerly crossed the sand beaches, the ducks flying so low as sometimes to be knocked down with clubs. They are now much less numerous and more shy, — so sportsmen inform me. Men who shoot for market now sometimes bag a thousand birds a day on Monomoy. Egg-collectors gather, of gulls' eggs, a peck-basketful in a morning. A sea-captain who had been there many years ago, spoke of the eggs, in the language of the Saga, "*You could scarcely walk without stepping on them.*"

Fifty years ago, says an old farmer, boys were allowed to go from Chatham (against the ancient Straumfjord) "gull-egging," immediately after corn-planting, some time in June. This was a kind of holiday privilege.

The eider-duck is a native of the Arctic regions. Sportsmen having preserves among the islands off the main shore of Labrador tell me that the nesting-season of eider-ducks is in early summer, and that they nest in great numbers on the islands along the coast, in tufts of shrubbery. Prof. A. S. Packard observed their nests on this coast in places so sheltered, *and not on sand*. The eggs Thorfinn's party observed were on the *sand*, and therefore, it is to be presumed, could not have been eider eggs. A little reflection will impress the careful student of the incompatibility of the eider-duck coming to nest so far south, to a region of forests and meadows and grapes and corn growing wild, such as the Saga describes. They came here possibly in southern migration *after nesting*. Numerous ducks, of various kinds, and eggs on the sand very close together were seen undoubtedly, as they may have been seen any time within the last two hundred and fifty years; but the circumstance that one of the Saga relations does not specialize the kind of birds is more in keeping with the probabilities than the statement of the other two relations, — that the eggs were the eggs of eider-ducks.

Icelanders have informed me that the eider is domesticated in Iceland, and that special arrangements are made for its nests.

As the flocks of ducks were so large fifty years ago, and so tame that individual birds were sometimes knocked down with a cane when they were flying across a beach from water to water, it is not impossible that the Northmen of Thorfinn's party may have knocked down a duck of the family of coots, — which embraces the eider, — and so, with the observed profusion of eggs, laid the foundation for the statement in the Sagas.

Position of the Hóp.

In the Saga of Thorfinn, after a version of the death of Thorwald, it is stated that "they looked upon the mountain range that was at Hóp and that which they now found, as all one, and it also *appeared to be of equal length from Straumfjord to both places*."

Thorfinn, sailing across the bay from the Cape near Provincetown, may have caught glimpses of the hills in the interior beyond the Gurnet and Plymouth, and conceived them to be identical with, or of the same range as, the Hills (Blue Hills of Milton) visible from the Back Bay (Hóp) and from many points about Boston. The language of the Sagas — differently rendered by Beamish, Smith, Eliot, De Costa, and others — appear to leave it possible that Thorfinn may have seen these hills from Straumey (Chatham Beach), and that he was led to a personal examination of the locality. The Coast Survey map (p. 94), presenting the stations used in triangulation of the coast of Massachusetts, exhibits an open trough for the line of vision from the Blue Hills to Chatham. In order to its service in Thorfinn's interest, there must have been eminences from which the intervening hills would be below the range of vision. Such elevations I did not find. The width of land area, made up of moderate hills and valleys, on the line toward the Blue Hills from Chatham Lights, was at least some sixteen miles. I

learned from an assistant to the former Chief of the Coast Survey, — Captain Eldridge, — still residing on the spot, that the observations between the station nearest to Chatham and the Blue Hills were conducted with the aid of rockets. The distance for direct vision was too great. Only looming (refraction) could have availed at a distance so great, — seventy miles.

One of the passages bearing on the point is the following: "Then, having returned, . . . they concluded that the hills which were in Hóp were the same as these which they here saw [from the Gurnet]."

The range of blue hills in the general direction from the north beyond the Gurnet I have repeatedly seen from the elevation above Provincetown, and also from the Highland Light. But in sailing from Provincetown to Boston, on a line passing near to Minot's Ledge Light, I carefully watched for the appearance of the Blue Hills, and did not distinctly see them with a glass until approaching Cohasset, or later, Point Allerton. I am satisfied, therefore, that although the Blue Hills are several hundred feet high, it was not the Blue Hills proper, but what seemed to be a continuation of the range, that was seen by the Northmen from the Gurnet, or from the eminences of the north end of Cape Cod.

Promontories of Cape Cod and the Gurnet.

Let us put together the quotations from the Sagas bearing on the relations of the two promontories to each other.

Leif had touched on the island "lying opposite to the northerly part of the mainland," and "sailed through a bay which lay between the island and a promontory running towards the northeast, and directing their course westward, they passed beyond the promontory." He came to "where a river flows from the land through a lake into the sea."

"Thorhall the Hunter wished to go north, round Furdustrand and Kjalarnes, and so to explore Vineland."

Thorhall's desire to *explore* Vineland betrays that his visit to the region had been for a brief interval only, and had preceded his visit to Straumfjord.

"Thorhall's party then sailed northward round Furdustrandir and Kjalarnes. But when they desired to sail thence westward they were met by an adverse tempest and driven off.

"Thorfinn went with one ship to seek Thorhall the Hunter, the rest remaining behind. Sailing *northward* round Kjalarnes, they went *westward* after passing *that promontory* lying to their left hand. There they saw extensive forests."

There were, then, *two promontories*. On *one* Leif had landed. On this Thorwald had set up the old keel in the sand, and called the place Kjalarnes. Thorfinn, some years later, came upon this old keel, and recognized the place as Kjalarnes, having heard Thorwald's story. How plainly this Saga shows that the experiences of Leif and Thorwald were familiar to Thorfinn and Thorhall! From this point Thorwald and Thorfinn sailed *westerly* to the *second* promontory. Here Thorwald was buried. Thorfinn sailed past it on his return from Straumey to the site of Leif's houses, as Leif had done after his Landfall, to where "a river flows from the land through a lake into the sea."

Let us pause a moment to consider.

All three, — Leif, Thorwald, and Thorfinn, — as we shall later still more plainly see, *had been at a point — a promontory — southeast of Vineland.* To one the point had been recognized as an *island.* The other two had recognized it as a cape, — a *nes,* — and marked by a monument (the old keel) that gave its name. *From this point all three had sailed westward to a second promontory running to the north or northeast.* One of them, *Thorwald,* was buried there. Two of them, Thorfinn and Leif, *passed* the promontory, and sailing westerly came to where a river *flowed out of a lake. All three had been in this lake* [the Hóp] *before, as all had stopped at Leif's houses.* Kjalarnes and Krossa-nes and the river on the banks of which the houses were built were *familiar to these three men.*

Supposed Landfall of Leif on Nantucket.

The prevailing notion has been that Leif's Landfall was on the island of Nantucket. It was entertained by Rafn. This mistake was doubtless due largely to the absence of accurate early maps of Cape Cod, and also to an inadequate appreciation of its earlier geography, — as a chain of glacial moraines, originally a crescent-shaped

collection of hillocks of varying, moderate height, more or less surrounded by water; but later, by natural agencies, — currents of water, and winds and waves, — resolved into a continuous peninsula.

The Saga of Erik the Red required that the Landfall should have been on *an island north of a projection of the mainland.* There is *now* no such island. According to the modern maps, one may now drive from the extreme of the Cape to Buzzard's Bay. But the student of geography and of the Sagas had no alternative. *He must have an island for Leif's Landfall.* Why not take Nantucket? It was, to be sure, not on the north of the mainland, but it had other desirable attributes. It was nearly as far east as Cape Cod. It lay in the course of a northeast wind and the Arctic current, such as had brought Biarni, by chance, in sight of land, and such as Leif had enjoyed on his last two days before the Landfall; it was more or less surrounded by sand-banks and beaches. As the Saga says, "*There were long shores of sand.*" To its north were great salients. They were readily distinguished from one another. These projections (Helluland and Markland) are on the Icelandic school-chart of Stephanius, between the salients of Greenland on the north and Promontorium Vinlandiæ on the south.

This excludes Labrador, a country of desolate mountains, bold rocky shores, and practically *no beaches*, from the possibility of being Vineland. Southwest of Greenland, across the Straits of Belle Isle, lies Newfoundland. This was the last point left by Biarni on his return from the South before reaching Greenland, and the first touched by Leif going South, after leaving Greenland. *Leif called it Helluland.* Its shore was covered by flat rocks (see photograph, p 31),— its interior marked by mountains covered, at the times of Biarni's and Leif's visits, with snow. *Markland*, the next projection, was "low, flat, and overgrown with wood; and the strand far around consisted of a white sand, and low toward the sea."

Now, as a fact it seems that southwest from Greenland (in which direction lay Helluland) is our Newfoundland of rocky shores, *no beaches*, and mountains of scant vegetation in the interior. This is what *Biarni saw*, and what *we know*.

But Markland had a "*strand far around of white sand.*" This *must have been* Nova Scotia, which is bordered with sand-beaches. This *Leif saw*, and *we know*. Two days' sail toward the southwest was *Promontorium Vinlandiæ*, which was also low and wooded, "and there were long shores of sand." This *must have been Cape Cod*, with its shores of sand, since Cape Ann, another salient, is rocky, and all the region from Portland to Passamaquoddy is *without beaches*.

On this Promontorium Vinlandiæ Leif is conceived to have made his Landfall. To the northwest of it was the Vineland of the Northmen.

"They came again in sight of land, approaching which they touched upon an island lying opposite to the northerly part of the mainland (literally, northward of the land, — *nordr af landinn*). Here they landed, and found the air remarkably pleasant." In Peringskiöld's Heimskringla we have: "They . . . made land. They sailed towards it, and came to an island which lay on the north side of the land, where they disembarked to wait for good weather."

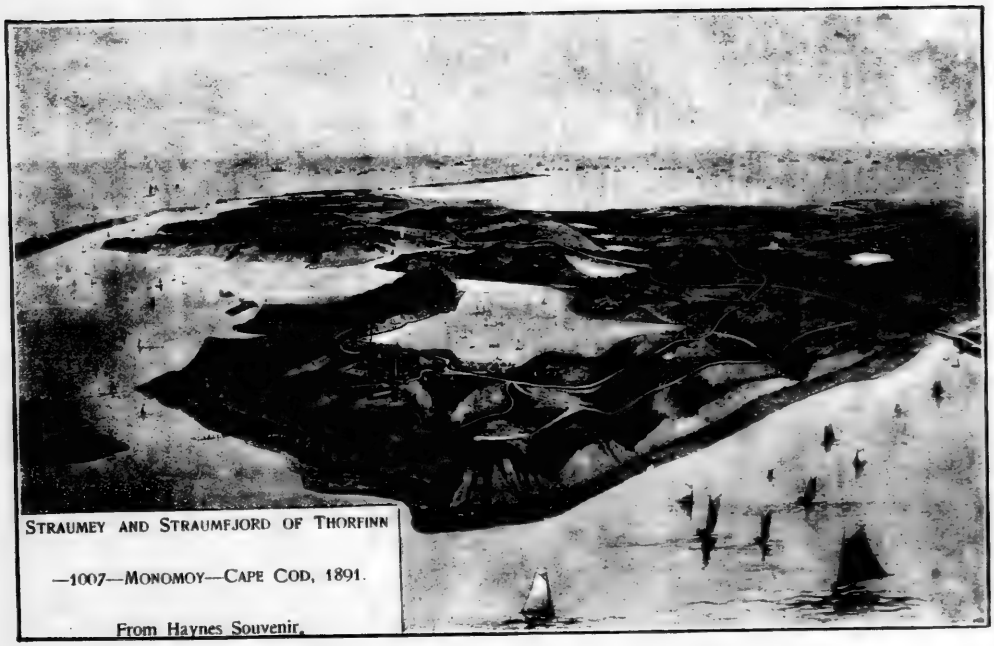
This constitutes the Landfall.[1]

Dr. De Costa conceives the island on which Leif touched to have been outside and to the east, against the town of Orleans, and to be now washed away. There is, off this shore, a point, some miles out, known as Crab Ledge, where anchors sometimes become entangled and bring up roots of trees. (See Champlain's Map 1612; Cape Baturier.) This lends support to the notion that there was once an island here (Agassiz was inclined to think so), which has been gradually cut down by currents, — as Brown's Island off Saquish Beach, near Plymouth, is by some conceived to have been.

Rafn, as we have seen, regarded the island on which Leif touched as Nantucket, south of Vineyard Sound, and so did Smith and the earlier writers generally.

The essential thing is that *Leif touched on an island* at the *north* of what seemed the mainland. It was on *one side* (the east side) *of a bay*, — that is, a sheet of water largely bounded by land, not a *strait or sound*, and it was *open on the north*.

[1] Prof. Henry Mitchell, of the United States Coast Survey, may have been possibly earlier than myself to hold that Leif landed on the northerly part of the present Cape Cod.



STRAUMEY AND STRAUMFJORD OF THORFINN —1007—MONOMOY—CAPE COD, 1891.

From Haynes Souvenir.

Clearly the island could not have been Nantuket.[1] His visit must have been brief. No mention is made of their setting up booths; they "*touched*" only. They were able to recognize, with little delay, the relations of their landing-place to a bay *through or across which* they sailed to a promontory "running to the *northeast*." That *must* have been on the larboard, as he sailed away from his landfall. Leif may have first sailed southward some distance to recognize that he had touched on an island. The essential feature was a bay opening northward, with an island at the northern extremity of the promontory on the east side. (See maps later.)

But one Furdustrand to which the Saga applies.

A *furdustrand* is necessarily a curved sandy shore, with the *convexity toward* the sea. It cannot be a straight beach, nor a beach *concave* toward the sea.

Where can such a beach be found south of Portland to Annisquam, or from Marblehead to the Gurnet? In all this coast the curves that are convex toward the sea are too short. Most of the curves are reversed, — that is, concave toward the sea. There are no beaches of any considerable length from Portland to the Grand Menan. It is an archipelago of rocky islands with bold shores. There are sand-beaches on the south coast of Nova Scotia, but none running *northward toward an open sea and curving round into a bay at the west*. The curvature and horizon do not permit a furdustrand, — a wunderstrand. And, finally, on the coast of Newfoundland and Labrador there are practically no beaches whatever.[2]

[1] The island of Nantucket is *not on one side of a bay*, the shore of which is of necessity, in outline, a sort of sack. It is, on the other hand, on one side of a *sound*, — not a sack, but a *channel*, — where the average tide rises little more than three feet, whereas in Cape Cod Bay it rises from eleven to twelve feet. As an island it fills the need of the Saga, which the *present* Cape Cod does not. But we shall see that Cape Cod was, in earlier times, quite adequate to meet this requirement of the Saga.

[2] There is (see Mitchell. Address at unveiling of Leif's statue) mention in separate Sagas of a Furdustrand on the coast of Labrador, of another on the coast of Greenland and also of still another on the coast of Iceland. They may have been caused by mirage. The shore had some quality that made it wonderful, unique, but it was a shore of sand, — a beach.

Furdustrand and Mirage.

After Thorfinn had found Thorwald's keel, and had sailed far enough around the Race to take in the great salient sweep of the shore toward Nauset harbor, he recognized the retreat of the vanishing point as they approached the horizon, and called the shores Furdustrands. They were also called Wunderstrands, — possibly from the occurrence of the mirage, which is familiar to ship-masters sailing along these coasts.[1]

The curve, which is of constantly increasing radius as one goes out from Provincetown harbor around the Race to the east and south at 41° 51′, approaches, toward Monomoy, sufficiently near to a straight line to lose its character as a furdustrand. That is, observed from a vessel at a little distance off the shore, the vanishing-point of the bluff at the south would be as distant as the vanishing-point of the general horizon; whereas before, the extension of the beach was constantly proceeding as the ship advanced. At length the shore line was nearly straight against Nauset harbor; and here was the end of the Furdustrands.

The only section on the New England coast, so far as I have been able to discover from the Coast Survey map, where north and south trend, convexity to the sea, and a bay at the north and west are possible, is that embracing the chain of ancient glacial moraines, strung together with convex outline against Cape Cod Bay.

Grapes and Corn on Cape Cod.

It was at this point — the south side of the opening to Nauset harbor — that the Scotch servants were put ashore to run over the land *to the southward* (Beamish), southwest (Smith). Here they found grape *fruit* and corn in the *ear*. They had seen it two months earlier just out of the

[1] I have seen the whole Peconic Bay, near the east end of Long Island, N. Y., — twenty-one miles long, — lifted up so as to be visible from behind a hill one hundred and eighty feet high, a mile distant and at the level of the sea. This was in the neighborhood assigned to the legend which lay at the foundation of Longfellow's "Phantom Ship." I have seen Block Island, with its sand-bluffs and hotels, at a distance of forty miles across water.

ground at Vineland; *now* there were *ears* of corn and *bunches* of grapes.

The significance of this relation may not be easily overestimated. Consider that wherever the vessel may have laid, *there was a region of land to the south or southwest of it*, a condition not permitted *anywhere* on an *east and west coast*, like the coast west from Chatham or Monomoy, to and including Long Island Sound. This consideration alone precludes the presence of the Northmen of *Thorfinn's party* from all the region of Narragansett Bay.

The next sentence in Beamish is, "These went on board, and after that sailed they farther. They sailed into a frith," — long bay; a fjord, — a channel.

Smith renders it: "They went on board, and then the ship proceeded on their course until the land was intersected by *another bay*." The fjord was then the *second* bay on the east coast, — Chatham Bay, — and they had put the servants ashore at the *first*; that is, Nauset Bay, the entrance to which in earlier times was some distance to the north of where it is now. Judging from the termination of the bluff, it must have formerly been at 41° 51′, whereas it is now about 41° 46′. The opening through the beach, with the predominance of currents to the south, is constantly setting southward, — so Coast Survey officers have told me, — building on at the southern end of the northern bar, and wearing off correspondingly from the northern end of the southern bar.

Champlain observed there two harbors, and pictured them. The entrances are through ridges of sand. I present heliotype copies of his sketches. This sand-ridge is, in many respects, the most remarkable feature of our coast. For some time before 1855 it was cut through against the Chatham Light, constituting the entrance to Chatham harbor. But the storm of 1855, which carried away Minot's Ledge Light, cut down the bluff against the old Chatham Light-house, and undermining the tower where the bluff is not less than forty feet high, back for three hundred feet, it obliterated the beach for the time being. The harbor was open at the date of the accompanying Coast Survey maps, but it is now closed as the resultant of the prevailing wave and current action, which must always maintain the bars, and if broken away by a storm, renew them. There are now two lights side by side several hundred feet back from the bluff.

A glance at the Coast Survey map will show the extraordinary features of this ridge as it was before 1855, but not as it is to-day. The beach or island or sand-ridge at low tide is now almost continuous from the entrance of Nauset Bay to the southern end of Monomoy. From the face of the bluff at the beginning of the beach to the present terminus of Monomoy, it is not less than twenty-one miles.

At the time of Champlain the entrance to the old Chatham harbor, north of the Lights, was possibly farther to the north.

Straumey and Straumfjörd.

In Thorfinn's time this bar was the Straumey (Straum-ö, — *an island made or distinguished by currents*). The channel between the island and the shore, only a few hundred yards in width in some places, was the Straumfjord, — a fjord *having a strong current through it*. It is the same to-day. To-day the current through this channel is about six knots with either tide. The island — the long, narrow beach — is the great shooting-ground of Massachusetts sportsmen for duck, plover, snipe, etc., in their migrations north and south. From here, in the season, small birds by the thousand are shipped daily to the Quincy Market. Here are quantities of gulls' eggs on the sand wastes. In earlier times, ship-masters have told me, the eggs were so numerous as to make it difficult to walk without treading on them, — precisely the language of the Sagas.

This was the spot which meets the needs of the Saga that describes the movements of the Thorfinn expedition before the defection of Thorhall, who wanted to go *north around Furdustrand*, and *westward to explore Vineland*, with whose location he was plainly familiar. It was clearly at the northwest of Cape Cod.

This is in keeping with the remark of Stephanius, that the water south of Straumfjord was regarded as a gulf that separated Vineland, as an island, from America.

The presence of the Northmen in Narragansett

Bay, before and after the discovery of Vineland, is conceivable. The historical record to which Stephanius refers applies to the time before 1012.

Thorfinn's Cliff, and the Cape St. Margharita of Verrazano.

The promontory at the southwest; the expanse of the muddy banks of the meadows covered at high water; the very few points of hard soil where the crew could have landed, — that is, the points which were of solid mainland, and not marsh; the rocks at College Wharf below half-tide where the Northmen jumped ashore in the fight with the Skraelings; the creek, or bayou, where the vessel could be hauled up, as Thorwald mentions, for the winter, and from which landing on solid ground on the *southwest bank* was not only easy, but the *only* point where it was possible; the course of the river above the landing; the presence of salmon in the river; the birch-bark canoes resembling and suggesting the skin canoes with which they (the Northmen) were acquainted, — all these are obvious to the careful student of the river and its history, although it may be very difficult to make it clear to one who cannot or does not visit the localities. Even the Skraelings, mentioned in the Sagas as dealers in peltry of various kinds and in quantity, were described by Allefonsce and Thevet, by David Ingram in connection with the story of Norumbega, by the Bretons, the Dutch, and the English. But there is one thing called for in the Sagas that does not now exist on the banks of the river. It is mentioned in the Thorfinn Sagas that *he piled wood on a cliff near the ship to dry*, where it might be swept by the breezes, and be not far from an adequate depth of water for easy loading.

Where is the cliff?

All the wants of the narrative but this are met near Gerry's Landing, Symonds's hill, — the spot to which laden vessels came, and from which the supplies coming by water for the early Watertown were for a long time carried up.

There is no other point on the river where the Northmen could have landed on the *southwestern bank* of the river, with a promontory at their southwest, from behind which above the landing the river issued to sweep past the dwellings down to the lake, and where in a sheltered recess the ship could lie in safety through the winter. At no other point on the tidal portion of the river is the ebb current from the southeast to the northwest. The Saga demands a cliff at this particular point. The cliff is wanting.

Fifty years ago the milldam across the Back Bay did not exist. Men who were living in Cambridge at that time may remember to have strolled along what was then called Bank Lane, a pathway by which, skirting the meadow-banks along the river, the proprietors — owners of riparian rights in the grass of the marsh lands — were able to reach and remove their hay. Between Gerry's Landing[1] and Mt. Auburn Street, abutting on the river, they recall, as I do, — and I have been a resident here only forty-four years, — the steep, beetling bank, swept by the current of the Charles at its base. Some remember the swallows' nests near the top. The height of the bluff is variously remembered; but the late Mr. Coolidge, who owned the neighboring land, and who cultivated for a term of years the higher land northwest of the landing, remembered it as sloping slightly toward the foundation of the City Hospital, and as having about the same height as the foundations of his own residence, — thirty-five feet above high-water mark. This bluff was cut down to aid in filling low places in Cambridge, and for filling up the mill-dam across the Back Bay.

Thus we have the last requirement of the Sagas, — the cliff on which Thorfinn piled his hewn wood to dry, and from which it could be easily shot to the vessel to be stowed away for its voyage. How the wood became wet and needed to be dried before shipping, belongs to another line of inquiry.[2]

It will facilitate the understanding of the text if it is remarked here, — what will become obvious further on to one familiar with the locality, — that Leif's ship grounded on the flats, probably above Castle Island during ebb-tide, and that the men ran ashore somewhere in the neighborhood of Dock Square, or of East Boston. The tide was issuing between Copp's Hill and Noddle's Island (East Boston). When the ebb ceased and the

[1] So called from its nearness to the residence of Vice-President Elbridge Gerry, now the home of Prof. James Russell Lowell.

[2] See "Discovery of the Ancient City of Norumbega."

flood-tide rose, "they passed up," — "floated" or "moved" up, — the river. They could not sail up (the river was too narrow), and they were not rowed up.

Direction of the Flow of the Charles.

The river of Leif, up which he *floated*, at the outlet of the lake between Copp's Hill on one side and Charlestown and Noddle's Island on the other, is still deep at low tide (Des Barres gives three fathoms, presumably at low water. Verrazano gives eight feet). Thorfinn and his companions sailed, or floated, up as far as the mouth of the river above (Cottage Farm Station on Boston and Albany Railroad), and called the place "Hóp." This was the name of the Back Bay and meadow region above, covered with water at flood-tide.[1] The term is descriptive of a land-locked harbor, with the flood and ebb alternately salt and fresh. (See Glossary.)

Thorfinn's approach to the site of Leif's houses is thus described: —

> Sailing north around Kjalarnes, they went westward after passing *that promontory* [the Gurnet and Cohasset], the land lying to their left hand [larboard]. There they saw extended forests [the region from below Manomet toward Plymouth]. When they had sailed for some time they came to a place where a *river flowed from the southeast to the northwest* [Symonds's hill near Cambridge City Hospital.] Having entered its mouth, they cast anchor on the *southwestern bank* [mouth of the rivulet draining Mt. Auburn]. — Smith, p. 185.

The only portion of the Charles where the current is from southeast to northwest is in the last quarter of a mile as it approaches Symonds's hill. See city map, page 94.

The Gurnet Krossa-nes.

The moraine of the Gurnet above high water is probably some twenty or thirty acres in extent; and the highest point — the Nose — on which the light-house (seventy-two feet tall) stands, which is probably several feet above the summit of the original moraine (thrown up for purposes of military defence), may be some forty feet above high water. As it presents a bluff to the east — the ocean — it was once larger. The tide is some ten to twelve feet.

The distance from the Spit at Provincetown to the Gurnet is some seventeen miles. It is not impossible that the altitude of the promontory was apparently greater from refraction at the time of Leif, as the Provincetown hills seemed higher from the Gurnet than they really were at the time of my last visit in the month of July.

As some students of the subject have been led by its intrinsic difficulties to place Vineland on Nova Scotia, I have prepared a map showing where the shortest day of six, seven, eight, and nine hours would place Vineland, and where it could not be, under the topographical conditions supplied by the Sagas.

The shores of Markland (Nova Scotia) were sandy. The shores of Vineland (the Furdustrand — Straumey) were sandy. From Cape Chudleigh, the entrance to Hudson Bay (the northern limit of Bishop Sveinson's Vineland) to Belle Isle was practically *without beaches*. From Belle Isle to Cabot's Strait, the eastern face of Newfoundland, the shore, like that of Labrador, is bold, rocky, desolate, and *without beaches*. The coast of Nova Scotia is girt about with white sand-beaches. The coast from Frenchman's Bay to Portland is bold and rocky, and without beaches. From Portland south, with trifling interruptions, to Florida the coast is a long line of sand-beaches.

As the Vineland of Leif and Thorwald and Thorfinn was marked by sand-beaches, the possible Vineland — regardless of considerations of latitude — was limited to Nova Scotia and some region south of Portland, Me.

The accompanying map enables one to see where the shortest days of various lengths would place Vineland. Except for the shortest day of nine hours, — which, with corrections for the precession of the Equinoxes, would come exactly where I have found the remains of Leif's and Thorfinn's houses, — the points indicated for eight, seven, and six hours are only approximate.

I have already alluded to the recognition of Boston Back Bay and the Charles on the map of H. Verrazano (lake three leagues around), and to

[1] The word "mouth" as applied to the *river* seems to have been used to designate at least two localities, — one between Copp's Hill and Noddle's Island, another at Brookline Bridge. Possibly there was another at the limit of flood-tide.

the name Norman Villa (Northmen's Settlement, or cluster of houses). This name corresponds in place with the same name on Ulpius's globe, and appears next but one to Anguileme (Eel River), the equivalent of the Algonquin Mishaum, the Indian name of the Charles at the time of Winthrop. It was also called *Mess-adsoo-sec*, — Great-hills-mouth, — (Rasles) Massachusetts (*Massachusett*, which would also be "the neighborhood of the great hills"), and, earlier, Gamas and Gomes (Gomez ?) Guast and Sole, as well as R. Grande, and Norumbégue. The next name (that is, *between* the name of the Northmen's Settlement — Norman Villa — and Anguileme) is Cape *St. Margharita*, the promontory at the southwest from Norman Villa, from behind which the Charles issues. It may be of no especial significance in a region in which to-day the ox-eye daisy abounds in its season; still it is not without interest that daisies occur here in profusion, — one of a series of coincidences, which, with the restored cliff, and the "rocks" elsewhere mentioned, contribute to make the logical chain complete.

I have indicated the points on the section of the map of the Charles, showing the upper part of the lake through which the river flows to the sea. I have sought by photographs and sketches to make the locality of the Landing readily recognizable.

In coming up the Charles with the flood-tide for the first time, Leif's attention would be drawn to the muddy banks and soft meadows on either side after entering the Back Bay, and to their unsuitableness as places for landing and building; and his eye would be caught by the bluff of Symonds's hill, and, as naturally as did Saltonstall six hundred and thirty years later, he would anchor at Gerry's Landing. It also seems natural that he should set up his tents for the first time on, or near, Symonds's hill. Later, he built a house, or houses, at the foot of the hill near Gerry's Landing. Here Thorfinn landed first, and occupied Leif's houses. Later, he landed on the southwest bank, on his return after his search for Thorhall. So we have near the head of the bayou, at a bit of mainland, the spot where the ship's party went ashore, and near it are the traces of dwellings and the fish-pits, still to be seen.

The Chart of the Charles.

This chart, prepared by the United States Coast Survey, has not before been published. The depths are taken at extreme low water. It will be observed that the depth of the little harbor, where I conceive the Norse ship to have been sheltered, was from five to ten feet in the middle, at the least, at all times, and at high tide it was ten to twelve feet more. Here I conceive Thorwald drew up his ship for a winter. In this little harbor the choice wood was first gathered for shipment, and from this little cove Thorfinn carried it by hand to the top of the neighboring cliff (Symonds's hill) to dry. From the cliff it could be easily loaded on the ship.

On the southwest bank of this inlet the upland, for a few feet along the shore, comes down to the margin of the channel, — providing the essential landing-place at all times; the first, if not the only spot, as one goes up the lake (the great Back Bay and the river meadows submerged at high tide), having a cliff on the river bank, *in all the lower Charles*. Everywhere else is mud below and meadow above, if we except the rocks below the College wharf, of which possibly the Norsemen, at the battle under Thorfinn, took advantage.[1]

At the site of the ancient *cliff* (Cabot's rendering of the Saga) the channel followed up curves first to the southeast and then to the west, around a promontory (Cape St. Margharita of Verrazano), and now occupied by the Cambridge City Cemetery. It was, I conceive, from beyond this promontory along the Charles — the Mishaum (Eel

1 "They began to fly along the course of the river, for they imagined themselves to be surrounded on all sides by the Skraelings. They did not halt till they reached some rocks, when they turned about and fought valiantly.

"Freydis, Leif's half-sister, endeavored to keep up with them. The Skraelings pursued her. She saw a man lying dead. This was Thorbrand, the son of Snorri [Smith], in whose head a flat stone was sticking [a flint arrow-head]. His sword lay naked by his side. This she seized, and prepared to defend herself. The Skraelings came up with her. She struck her breast with the naked sword, which so astonished the Skraelings that they fled back to their canoes, and rowed off as fast as they could."

There is only one spot within several miles along the Charles where this incident connected with the rocks could have occurred, and that is just below the College wharf, — the site of an ancient ferry.

River of the Indians), the Anguileme of Verrazano — that the fleets of canoes first came down, and after gazing at the strangers returned without landing. Later, and repeatedly, they came for friendly barter with furs. Later still, they came with an evident purpose to drive the Northmen out. It was some three leagues only from this point up the river that the Bretons, more than four centuries later, established their trading-post at Norumbega, where they bartered French ornaments and implements for "furs and skin wares." It was there, in 1569, that Ingram came, and from there he brought his story of Norumbega, — a city three quarters of a mile long.

THE END.